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What Is Past, Is Prologue

INTEREST in historical studies has been greatly stimulated in recent years, and the reason for this is obvious. Ours is an age of crisis and social upheaval, and a generation that finds itself a part of this all-encompassing historical process cannot help but reflect on the events which it sees and in which it participates. Reflection inevitably leads to an endeavor to analyze and to determine the causes and mechanisms that have produced these events; and this development in turn leads to an interest in history. For there can be little doubt that the historical approach is invaluable in comprehending the nature of difficult problems.

History is one of the most powerful driving forces in human development. Every situation that man has faced and every problem that he has had to solve have been the product of historical developments and processes. Furthermore, the way in which we act is, in large measure, determined by the mental image of the past that we have created. To understand our own society, to be capable of playing an intelligent role in shaping our own civilization, we must have knowledge of the actions of the past. But this is not enough. We must have a knowledge not only of the actions of the past, but of the mental struggles, the ideological and philosophical conflicts that preceded action. For as R. G. Collingwood, the British historian and philosopher, pointed out. "There are not mere 'events' in history: what is mis-called an 'event' is really an action, and expresses some thought (intention, purpose) of its agent; the historian's business is to identify this thought." Without sound historical knowledge, men act instinctively and emotionally, but not rationally.

The relevance of these ideas to medicine and its history is clear. Medicine as a vital element of human culture cannot remain impervious to the prevailing climate of opinion. We all know how vital has been the role of medicine and the medical profession in the present world conflict. History is replete with evidence that the maintenance of health is essential for the successful outcome of military operations. Nor can we overlook the fact that disease has often been a major factor in shaping the destiny of nations.¹

¹ Henry E. Sigerist: *Civilization and Disease*. Ithaca, N. Y., Cornell University Press, 1943 (especially Chap. V). Also John Saltmarsh:

Plague and Economic Decline in England in the Later Middle Ages. *Cambridge Historical Journal*, 1941, 8: 23-41.

There is still another and equally important aspect of the history of medicine. The medical thought of the past is an important cultural element in the training of every physician, and of every person connected in any way with the provision of medical care. It is an essential element of our culture and thus the concern of everyone. In periods of crisis, the preservation of culture is imperative; it is a task the significance of which cannot be estimated highly enough.

During the past seventy-five years a large part of the medical profession has turned away from the history of medicine. This development is comprehensible as a part of the change in the total outlook of our society, the increasing specialization of medicine, and of changes in education. We sincerely believe that this trend has resulted in a serious loss for a profession which by implication still acknowledges the importance of the historical approach each time it writes or speaks of the *case history*. In part, also, the onus for this trend may be attributed to medical historians who were not always able to make medical history the living, dynamic thing that we believe it to be. We do not want to cultivate medical history as a mere search for antiquities, as a kind of hunt for curios, but rather as a vital, integral part of medicine. We believe this can be done.

For these reasons the JOURNAL OF THE HISTORY OF MEDICINE AND ALLIED SCIENCES has been organized. At present there is in the United States only one other publication in this field, the *Bulletin of the History of Medicine*, edited by Dr. Henry E. Sigerist. It is the purpose of the JOURNAL to provide another focus for studies in medical history. It will not compete with, but will supplement the *Bulletin*. We welcome contributions on all aspects of the history of medicine, public health, dentistry, nursing, pharmacy, veterinary medicine and the various sciences that impinge on medicine. It is our feeling also that papers dealing with limited and specific subjects might well be supplemented by occasional articles of wider scope that would summarize certain important fields and outline the broad trends in them. From time to time the JOURNAL will request competent investigators to prepare such special review articles.

Finally, we wish to emphasize that medical history is now being made. The role of medicine in World War II, as well as its part in the post-war period, is undoubtedly of high interest for the student of medical history. We shall also welcome, therefore, papers dealing with the evolution of these current developments. While the scope of the JOURNAL will be as broad as possible, it will not publish bibliographies or papers of a philo-

logical nature, feeling that the *Bulletin* is the proper channel for studies of this kind. Consequently, we shall not stress the technical (philological, bibliographic) aspects of medical history, but will endeavor, while maintaining the highest literary and scholarly standards, to present studies that can be of interest to as large a section of the medical profession as possible.

Despite differences of thought and presentation in the varied content of the JOURNAL, its basic idea is and will be the thought of Terence: *Nothing is so difficult but that it may be found out by seeking.*

GEORGE ROSEN

Some Galenic and Animal Sources of Vesalius

CHARLES SINGER*

I. INTRODUCTION

IT is well known that the anatomical descriptions of Galen are not drawn from bodies of men but of animals and especially of apes, and that the form he dissected was the Barbary ape, *Macaca inua*. It is equally common knowledge that Vesalius violently and repeatedly denounces Galen and those who follow him for describing animal structures while professing to give an account of the human frame. Yet it is from animals that Vesalius drew many anatomical conceptions, not only for his early *Tabulae* (1538) but also for the *Fabrica* and *Epitome* (1543), as we shall presently show moreover, many of his anatomical descriptions are taken rather from the text of Galen than the book of Nature. Nevertheless neither his censoriousness nor his errors should be too readily condemned. They must be judged in their own peculiar atmosphere. It is much less easy to forgive the gratuitous obscurity and studied verbosity of his descriptive writing.

Vituperative criticism was almost normal to the humanist literary tradition of his day. Not a few distinguished Renaissance scholars produced their greatest works in moods which seem to us now both childishly irritable and flatulently abusive. Difference of opinion on a purely technical point was often expressed in language of the coarsest insult. Maliciously false references to the character of opponents were current forms in literary debate. Denunciations by Vesalius must therefore be read with the detestable literary manners of his age in mind. Among humanist writers he may fairly be described as quite moderate in tone.

Nor was it reprehensible in itself for Vesalius to draw on the anatomy of animals. Indeed it would have been remembered to him for righteousness had he not protested too much and too often that he alone described only the parts of man. The reliance on comparative methods gave a special distinction to the Paduan anatomical school that he founded. Without an appeal to animal bodies what could have been the achievement of Fabricius and Coiter, Harvey and Casserius and other great Paduans?

* The preparation of this article has been aided by a grant from the Trustees of the late Sir Henry Wellcome.

Certainly Vesalius dissected far more animals than men. That was as it should be. For investigating many points animal bodies are better adapted than human, and dissection of animals could be conducted in his own chamber. A glance at the scene depicted in the frontispiece of the *Fabrica* raises the reflexion that privacy must have been the pressing need of this noisy, bustling, exhibitionist genius.



FIG. 1. From one of the great muscle figures of the *Fabrica* (1543 p. 182). The right clavicle is turned back. The upward extension of the rectus abdominis as far as the first rib is a definitely simian feature. Vesalius writes: "The line *r* marks the termination of the fleshy part of the rectus abdominis. That muscle ends here in man as we have displayed in the previous figure. In the space between *r* and *f* is shown the tendon or membrane or non-muscular part of the rectus abdominis muscle of the ape, *r* being a fleshy part attached to the first and second ribs; *u, u, u* are the tendinous intersections in man in whom the muscle extends upward to the fifth rib as shown."

The anatomical vision of Vesalius was thus perforce a patchwork construction. Its basis was necessarily the dissection of animals and perhaps of still-born children. The results were corrected and checked at intervals from the corpses of adults. That is the best that could have been. It is

highly significant that the vision of the *Fabrica* became at once so complete and so unified. And remember that it was indeed a vision, for Vesalius is ever considering the complete living human form. It is that which the work seeks to conjure up for the reader.

There certainly remain many details of animal anatomy in the *Tabulae* (1538), and in the *Fabrica* and *Epitome* (1543), that have not been corrected, or have not been corrected fully, by human reference. It is not remarkable that these should be more evident in the earlier than in the later work.

Vesalius was very familiar with the anatomy of the ape. In the *Fabrica* he often refers to the way in which simian structures differ from human. A good example is to be seen in one of the great muscle figures of the *Fabrica* in which he portrays the rectus abdominis muscle of the ape and compares it to that of man (Fig. 1). Again Vesalius knows that there is in the right lung of the ape a lobe unrepresented in man, which embraces completely the *vena cava inferior* in part of its course (Fig. 2). It is evident, from many passages, that he had often dissected apes. He describes his preparation of the skeleton of one at Bologna in 1540.¹ It is however very improbable that he had examined the actual species used by Galen, the Barbary ape. *Macaca inua* is now very rare and was becoming so in the time of Vesalius. (I have had the opportunity of dissecting one.) On the frontispiece of the *Fabrica*, however, there is a representation of *Macaca mulatta*, the common rhesus monkey (Fig. 3). This hardy creature is native to Northern India and specimens were to be found in the markets of Venice and other ports of the Eastern trade. This would doubtless be the kind anatomised by Vesalius. For such purposes the differences between species of *Macaca* are of no significance.

I hope to convince the reader that the vascular system as pictured and described by Vesalius was influenced by his knowledge of that of the rhesus monkey and of other animals. I do not suggest that he did not dissect and describe the great vessels and thoracic contents of man. On the contrary I am sure that he did, and that he figures them in certain places in the *Fabrica*. The book in which he does so (*Liber VI*) is, however, the weakest of the seven in that work. What I claim is that the anatomy of the heart and vessels of certain animals, notably of the ape, was early and deeply impressed on his mind. In his accounts of such parts, it is those of animals, and especially of the ape, that he habitually presents in his general

¹ *Fabrica* 1543, p. 78.

schemes and often visualises in his detailed descriptions. Moreover, I believe that he did not dissect the great vessels of man nearly as thoroughly as is commonly believed. The simian and animal points that I discuss do not exhaust all those that might be inferred from the Vesalian accounts of the thoracic organs.

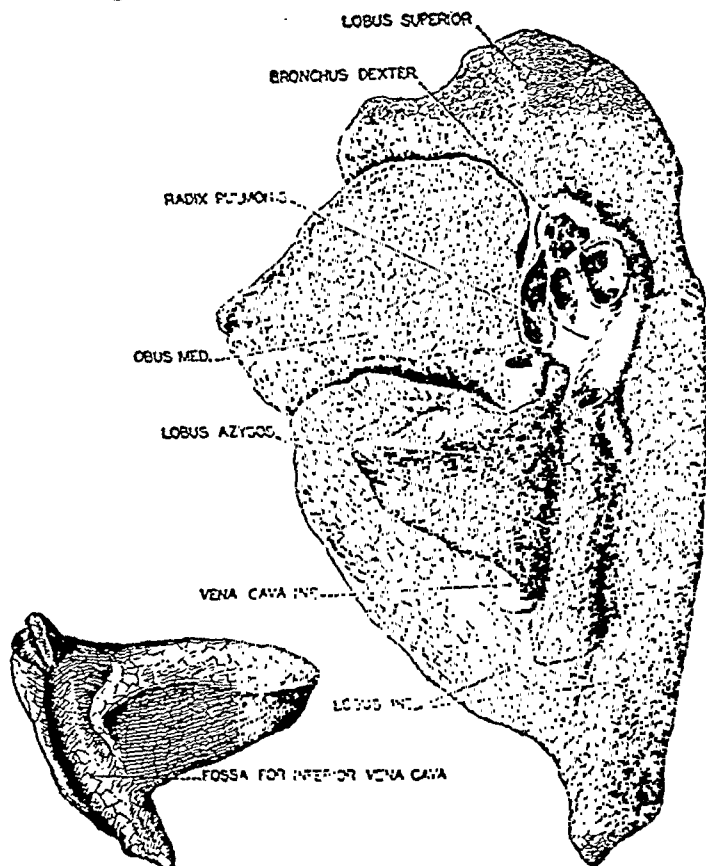


FIG. 2. Right lung of Rhesus monkey, posterior surface. The inset shows the azygos lobe which Vesalius refers to in the *Fabrica* 1543, p. 280.* He there says that this lobe enfolds a stretch of the *vena cava* as described by Galen (*De usu partium* VI, 4 and VII, 2, Kühn III, p. 421 and 518) but that there is no such lobe in the human lung. From P. Lineback in C. G. Hartman and W. L. Straus *Anatomy of the Rhesus monkey*, Baltimore 1933; reproduced by permission of the Williams and Wilkins Company.

To make intelligible the animal elements in the anatomy of the vascular system as described by Vesalius, it is necessary to say something about his physiological system. His aim was to set forth the *Fabrica*, the 'workings,' of the human body. Therefore to appreciate his anatomy we must understand his physiology which was that of Galen.

II. GALENIC PHYSIOLOGY AND ITS LATIN PRESENTATION

Standing behind all anatomical teaching before the seventeenth century is Galen's physiological system. It is contained in various texts printed in the great early Latin editions of Galen's works. Chief among these are the Giunta of Venice from 1541 onward and the Froben of Basel from 1542 onward. The two represent the same recension and to it Vesalius made certain minor editorial contributions. Until the boyhood of Vesalius,



FIG. 3. Representation of *Macaca mulatta* from frontispiece of the *Fabrica* 1543 of Vesalius.

Galenic teaching had reached the student of medicine less through versions of Galen's own works than through versions of Avicenna and of other Arabs and Arabists. But by the time that Vesalius began to study medicine at Paris (1533) the anatomical works of Galen had been translated into Latin by Guenther and others and were in circulation in convenient volumes. Vesalius was certainly an avid reader. He studied the new Latin Galenic texts; but he also studied the Latin Avicenna and other Arabist works far more than most humanists and he had some knowledge of their medieval commentators.

The physiological views of the Middle Ages, being inherited from Galen could, with slight adjustment, be made to conform to the newly recovered Galenic texts that were printed in the sixteenth century. The main need was re-expression in the humanist dialect of the time. For this task none was more expert than Giovanni Battista del Monte (Montanus 1498-1551), the most popular medical teacher in North Italy. In 1538 he was called to a chair at Padua where his work was already very well known. Vesalius and Montanus were in intimate contact. In the *Tabulae* Vesalius

was in effect putting into graphic form the physiological teaching of his colleague.²

Even with such a teacher as Montanus the art of scientific exposition made no great progress, chiefly because he did not use figures. Vesalius himself had a share in perfecting the technique of scientific instruction by the vast improvement that he introduced in the portrayal of anatomical structures and the representation of physiological processes. It is therefore unfortunate that the clarity of his graphic method — of which he was the first effective pioneer — is obscured by his very involved and highly unsuitable language. The account which follows is an attempt to set out the old physiology in the modern manner. It would be worse than useless to attempt to present a translation of the physiological passages of Vesalius for he could never rid himself of the wearying involutions of his own wretched literary style. A knowledge of Galenic physiology is a lantern in the fog of that humanist verbosity which enshrouds medical discussion of the day.

To understand the old physiology it is of course necessary to shed the idea of a circulation of the blood; but is also necessary to rid oneself of the conception that the passage of the blood through the vessels is a very active and continuous process. Blood (it was held) flows to and from the liver through the veins. Of these the chief are (a) the portal vein, (b) the *vena cava* (the two *venae cavae* being treated as one) and (c) a special diverticulum of the *vena cava* in the thorax, the right ventricular cavity (Figs. 4 and 6). The left ventricle sends out only a specially modified small fraction of the blood. The atria have but a subordinate function; they are mere safety-outlets from the ventricles. With these points in mind we turn to consider the system as a whole.

The basic principle of life in the Galenic physiology is a *spirit*, *anima*, or *pneuma*, drawn from the general world-soul or world-pneuma in the act of respiration. It is a pagan Stoic principle which, strictly interpreted, is inconsistent with Christian, Moslem or Jewish doctrine. This awkward fact is therefore always either slurred or misrepresented or misunderstood or ignored in medieval writings. Thus the medieval physiological system was basically unintelligible as, for that matter, is our own. With the advent in the sixteenth century of translations of the more philosophic

² The fullest expression of the physiological views of Montanus is in the work of his Polish student Valentine of Lublin. It is in effect a notebook of his master's lectures. *J. B. Montani . . . in primam Fen Libri primi*

Canonis Avicennae Explanatio Venice 1554. It gives an exceptionally good account of the physiological outlook with which Vesalius started.

works of Galen, and in the semi-pagan atmosphere of Renaissance humanism, current physiology took a form nearer to its original.

Nevertheless the 'world-soul' of Galen and of the Stoics (as well as of the heretical Christian and Jewish Averroists, whose stronghold was at

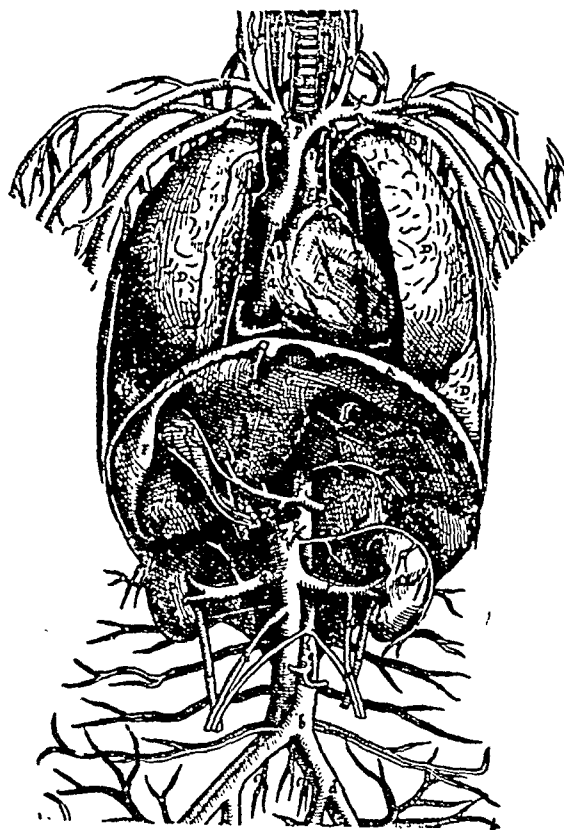


FIG. 4. Central part of a general scheme of the venous and arterial systems from the *Fabrica* 1543 (between pp. 112 and 113) repeated in the *Epitome*. The *vena cava* is of the simian type throughout as are the aortic branches, though they cannot be so well seen. The descriptive text runs: "T marks position of *vena cava* between *septum transversum* [diaphragm] and heart; a Trunk of the *vena cava* opening into right cavity of heart; b Right auricle; d Trunk of *vena arterialis* [pulmonary artery]; f Trunk of great artery [arch of aorta]; g Trunk of great artery dipping behind heart [descending aorta]; h Upper part of branch of great artery passing to left arm [left subclavian]; i Larger branch of great artery [*truncus communis*], which divides into two unpaired branches of which one k is the left soporal [carotid] and the other and greater [innominate artery] forms both l the right soporal and m the artery to the right arm; p Division of *vena cava* into two jugulars. And here on either side at q arise veins for the bones of the chest [internal mammary veins]."

Padua) could never be made to fit any picture of the world acceptable to the Church. It is a very old divergence. In the *Gospel according to St. John* there is a familiar passage which approaches and yet avoids this very

antithesis between Stoic and Christian: "That which is born of the Spirit (*pneuma*) is spirit (*pneuma*). . . . The wind (*pneuma*) bloweth (*pnei*) where it listeth . . . and thou knoweth not whence it cometh; so is everyone that is born of the Spirit (*pneuma*)" (John 3, 6-8). Examination will

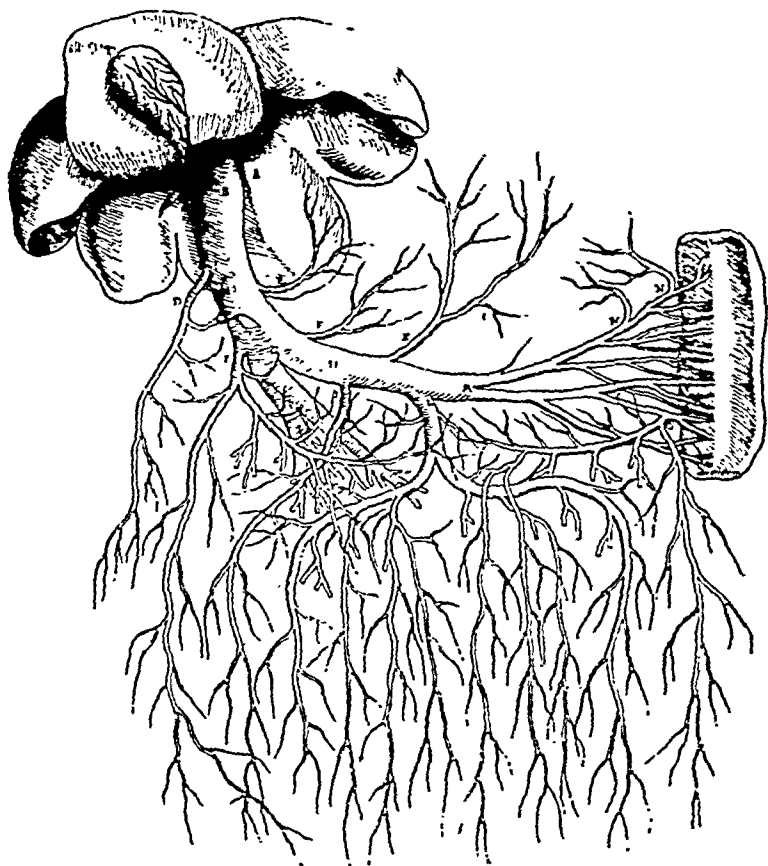


FIG. 5. Portal vein entering the liver, from *Tabulae* 1538. The liver is represented as formed of five equally splayed lobes. This is reminiscent of the ape's liver.

show that even in this short passage the word *pneuma* is used in several different senses. Thus the wind that bloweth is the *pneuma* of the world but the Spirit of which man is born is a very different kind of *pneuma*.

This world-*pneuma* or spirit of Galen enters the body through the trachea or 'rough artery' (*arteria aspera* of the medieval notation). Thence it passes to the lung and thence again, through the vein-like artery or *arteria venalis* of medieval writers (our pulmonary vein), to the left ventricle. Here we leave it for the moment.

Food traversing the alimentary tract, is absorbed as 'chyle' from the

intestine. Thence it is collected by the mesenteric veins into the portal vessel and conveyed by it to the liver (Fig. 5). In that organ the portal vein breaks up. Chyle is thereby elaborated into venous blood and imbued

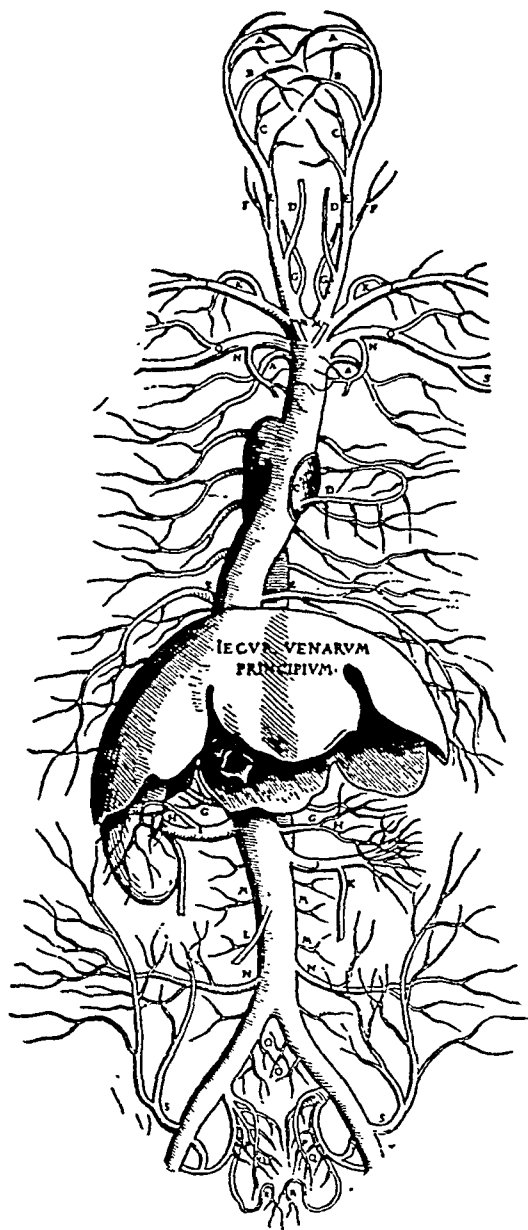


FIG. 6. *Vena cava* from *Tabulae* 1538 represented as arising from the liver with the right ventricle outlined by coronary veins. The vena azygos is greatly exaggerated and the superior vena cava is of ungulate type. Superior and inferior venae cavae form one continuous vessel as in the ape.

with the spirit or pneuma which is innate in all living substance, even of plants. This is the natural spirit (*spiritus naturalis* of the medievals). Charged with natural spirit, but also with the nutritive material from the food, venous blood is distributed by the liver through the systemic veins

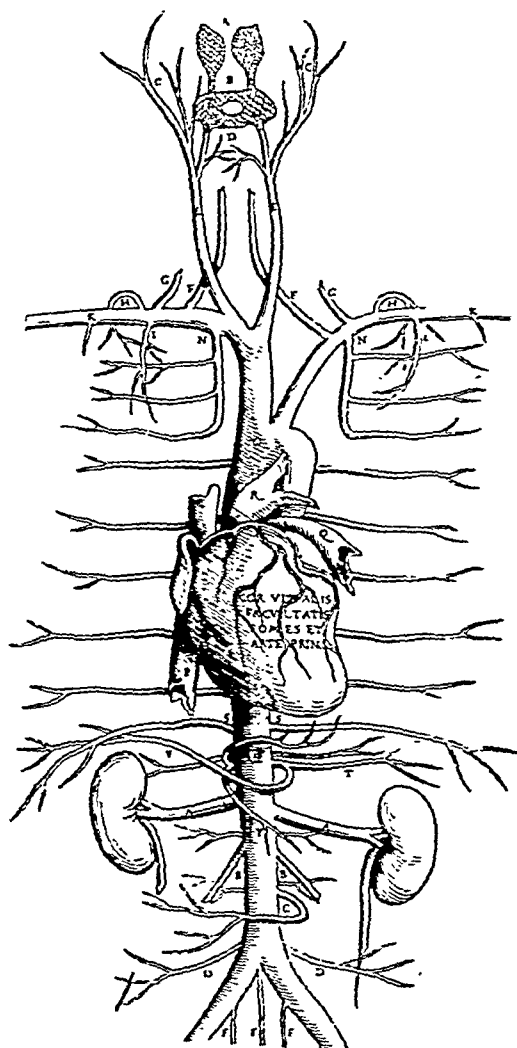


FIG. 7. Arterial System, from the *Tabulae* showing the origin of the *rete mirabile*. The form and position of the heart, the distribution of coronary vessels, the branches of the aorta, the vena cava, and the level of the kidneys are all as in the ape.

and primarily through the *vena cava*. This great vessel arises from the liver (Fig. 6) just as the aorta arises from the heart, that is from the left ventricle. The branches of the *vena cava* carry nourishment and natural

spirit to all parts of the body. *Jecur venarum principium* "the liver, source of the veins," is the first key to Galenic physiology. The blood ebbs and flows continuously in all the veins, including the portal vein.

As the vena cava passes upward it swerves to the left in the region of the heart. At this point it gives off its largest branch. This is a blind diverticulum which is, in effect, the right ventricle plus the right atrium (Figs. 4, 6 and 7). For the blood that thus reaches the right ventricle, two fates are possible:

(a) The greater part remains awhile in the ventricle, parting there with impurities that it has brought from the organs. These are carried off by the *vena arterialis* (our pulmonary artery) to the lung and exhaled thence to the outer air. Such fumes give a poisonous and suffocating character to the breath. Having parted with its vapours, the venous blood ebbs back from the right ventricle into the vena cava and the general venous system.

(b) For a small fraction of the venous blood that enters the right ventricle another fate is reserved. Drops of it, charged still with the natural spirit derived from the liver, trickle through minute imaginary channels in the septum between the ventricles.³ The only graphic representation that I know of these channels is that of Leonardo (Fig. 8). The fraction of venous blood that passes through them reaches the left ventricle. There it encounters the pneuma from the outer world that has come to it through the *arteria venalis* (our pulmonary vein) from the lung. By the action of this pneuma the blood in the left ventricle, or rather the natural spirit in that blood, is elaborated into a higher and subtler form of spirit, the vital spirit (*spiritus vitalis*). This is distributed by the arterial system to various parts of the body. The action of this vital spirit may be seen and felt in the pulse. *Cor vitalis facultatis fomes et arteriarum principium*, "The heart (that is the left ventricle) nurse of the vital faculty and source of the arteries" is the second key to the Galenic physiology.

Blood containing vital spirit ascends to the brain *via* the carotids, the 'soporal or apoplectic arteries' of Vesalius. These divide at the base of the brain into minute channels to form the *rete mirabile* (Fig. 7). In this 'marvellous network' the blood is again minutely divided. Thereby the vital spirit which it contains is transformed into the third, the highest and most subtle type of spirit, the animal spirit (*spiritus animalis*). This ethereal substance enters the brain and is distributed to the various parts of

³ These minute channels have, by a misunderstanding, become represented by a 'third ventricle' within the septum in the

translation of Avicenna and works derived therefrom.

the body. It passes thither by the nerves which were held to contain minute channels. Pressure on the soporal arteries prevents formation of animal spirit and hence induces faintness or unconsciousness. *Rete mirabile in quo spiritus vitalis ad animale preparatur* "The wonderful net wherein the vital is elaborated into the animal spirit" is the third key to the Galenic physiology.

According to the pagan Galen, writing under the influence of the Stoic philosophy, the three fundamental faculties, the natural, the vital, and the

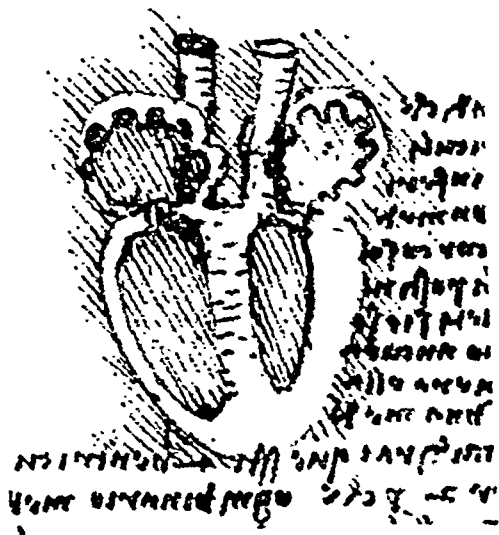


Fig. 8. Cavities of the heart by Leonardo da Vinci. *Quaderni d'anatomia*, folio 3 recto. The imaginary pores in interventricular septum are here clearly shown. In the accompanying text Leonardo writes: "The ventricles are separated by a porous wall through which the blood of the right ventricle penetrates into the left ventricle."

animal, which correspond to these spirits and bring into action the corresponding functions of the body, ultimately originate as expressions of the primal soul or world-pneuma. These spirits were well recognised as entities in medieval physiology, though necessarily there misconstrued.

This highly ingenious physiology is not derived from an investigation of human anatomy. It contains elements derived from structures found in animals. Thus in the human brain there is no *rete mirabile*, though such an organ is found in the calf. In the human subject there is no single *vena cava* but two separated *venae cavae* which, however, in the ape, as in the foetus, meet each other and form a continuous vessel. In man the great jugular and subclavian veins do not all conjoin at the same level into a *vena cava superior* (i.e. anterior) as in the ungulate. Many of Galen's errors were due to his ascription to one creature of conditions found in another. It was one of the achievements of Vesalius to discover and demonstrate this. Nevertheless, he was unable to improve on Galen's physi-

ological scheme. Throughout the *Fabrica* he accepts it, though, as we shall presently see, he throws away one of the keys to Galenic physiology in rejecting the existence of a *rete mirabile* in man. Yet much of the anatomy of Vesalius continued to be based on that of animals. Despite all this it remains true that to him belongs the credit of having made the first attempt to put a physiological system into graphic form (Figs. 5-7).

With the Galenic theory of the action of the vascular system there was combined, in the minds of men of the sixteenth century, the medieval version of the doctrine of the four humours, *Blood*, *Phlegm*, *Black Bile* (Melancholy) and *Yellow Bile*. The four Aristotelian elements, Fire, Water, Earth and Air, were held to be respectively the origin of these four, though Aristotle does not, in fact, mention the humours. The older Hippocratic writings, on the other hand, while they discuss the four humours, make no mention of the four elements. Each of the four humours was associated by the medieval anatomists with a special organ. There are thus four 'principal organs.' Blood arises from the *liver*, Phlegm from the *brain*, Yellow Bile or Choler from the *gall-bladder* — which is thus of peculiar importance — and Black Bile or Melancholy from the *spleen*. Vesalius retained this view. This we shall see specifically for the brain and its 'pituitary gland' which was held to evacuate the humour Phlegm.

III. RETE MIRABILE

The method by which a mental process initiates and controls muscular action was as mysterious to the ancient as it is still to the modern philosopher. But the ancient physiologist, like the modern, gave much attention to the mechanism of the nervous system. The elaborate descriptions of the physiologists were, as they still are, apt to mislead the unthinking into the naive error that research has displayed a mechanical intermediary between mind and body. In the Galenic system the *pneuma* of the outer world, modified first into natural and then into vital spirit, was supposed to come to the *rete mirabile* for transformation into animal spirit (*De usu partium* Book IX, Chapter 4). This somehow or other nourishes the mental powers which, directing the same spirit, produce voluntary motion. Thus mind and body were linked. The rete was essential to the working of the system. It contained the central mystery of conscious life, as did the pineal body for Descartes fourteen centuries later.

The actual *rete mirabile* of comparative anatomy is an elaborate network of vessels into which the internal carotid divides at the base of the brain. It is formed by that vessel just before the origin of the chorioid

artery and is a conspicuous feature in Ungulata, including the ox, sheep and pig. Galen had seen it in them. There is a much less developed *rete mirabile* in the Carnivora but no trace of it in the Rodentia or in man or in the monkey. The function of the *rete mirabile* is quite unknown.

The emphasis laid by Galen on this rete would in itself betray his reliance on animals for his anatomical accounts. But more, it shows how strongly his anatomy was controlled by his physiological conceptions, as indeed was that of Vesalius. During the Middle Ages the existence of the rete in man was not doubted. Mundinus (1316) carefully describes it, but adds that it can be well seen in human bodies only immediately after death. The same view is expressed by Estienne (1539 or a little earlier). The practical and independent-minded Berengario (1522) admits that he could not find it, though Massa (1536), an experienced Venetian anatomist with whom Vesalius was in contact, had no doubt of its reality in man.

In the *Tabulae* (1538) Vesalius expresses no doubt of the existence and form of the rete in man. To quote his own phrase, he portrays "a reticular plexus at the base of the brain, the *rete mirabile*, wherein the vital is elaborated into the animal spirit." It surrounds the infundibulum completely. From this circle of the rete two pear-shaped processes pass into the brain. These are the "choriform plexuses formed from arteries and veins in the cerebral ventricles" (Fig. 7). This is the first attempt to represent the rete in a printed book. There are earlier parallels in MSS.

In the *Fabrica*, when he comes to treat the rete, Vesalius acknowledges that he had been describing what was not. He writes: "I cannot sufficiently marvel at my own stupidity; I who have so laboured in my love for Galen that I have never demonstrated the human head without that of a lamb or ox, to show in the latter what I could not in the former, lest forsooth I should fail to display that universally familiar plexus. Yet in no way do the carotids form a plexus reticularis (in man) as Galen alleges" (*Fabrica* 1543, p. 642).

A franker recantation would hardly be possible. He goes on to discuss the pituitary body, which was supposed to be related to the rete, making some remarkable errors in doing so (Figs. 9, 10 and 11). These errors again are based on Galenic physiology.

IV. THE PITUITARY BODY AND THE APPARATUS FOR EVACUATING PHLEGM FROM THE BRAIN

In medieval and renaissance theory mucous discharges from the nose and mouth were held to be evacuations of the humour 'phlegm' from the

brain (see p. 11). Latin *pituita* is Greek *phlegma*, an equation which recalls our anatomical term 'pituitary body.' The theory was drawn from Galen and notably from a passage familiar to every medical student of the sixteenth century.⁴ The account given by Vesalius of the pituitary body and the parts associated with it is, in effect, an expansion of this passage. His description, however, improves little if at all on that of Galen from whom, nevertheless, he expresses his difference vehemently.



FIG. 9

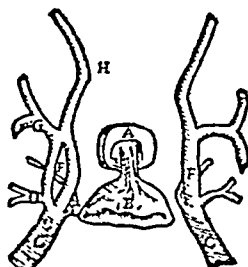


FIG. 10.

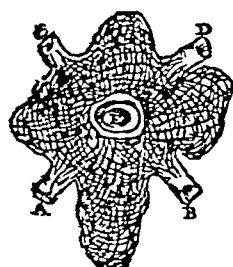


FIG. 11

FIG. 9. From *Fabrica* 1543, Book VII, p. 620. The descriptive text may be translated: "The part of the skull cavity covered with dura which is formed by the os cuneus [sphenoid]; A, B, parts of visual nerves; C, D, arteries which, penetrating the dura, are distributed partly to the pia and partly to the ventricles; E, here lies the basin [pelvis] which receives the phlegm dripping down from the third ventricle [i.e. the infundibulum torn from the brain with perhaps part of the tuber cinereum attached]; F, aperture through which the end of this funnel-like basin reaches the gland [i.e., the pituitary] which receives the phlegm of the brain [opening in the *diaphragma sellae*]; G, G, second pair of nerves of the brain [oculo-motor]."

FIG. 10. From *Fabrica* 1543, p. 621. Translation of descriptive text: "We here depict the [pituitary] gland laid bare, with the basin or funnel [infundibulum] which conducts the phlegm down to it hanging flaccid. At the sides we indicate, just as they have appeared to us in dissection, parts of the soporal [carotid] arteries which are alleged to form the reticular plexus. Since they are found variable in dissection, we have drawn variants. A, the gland. B, the basin or funnel. C, C, the arteries passing obliquely forward in their own proper channels in the skull."

FIG. 11. From *Fabrica* 1543, p. 621. Translation of descriptive text: "We here represent the plexus falsely, but according to the descriptions of Galen in his work *De usu partium*. A and B represent the arteries at the base of the cranial cavity which are supposed to break up into that *plexus mirabilis*. C and D are the vessels into which the branches of that plexus are supposed to be united. They correspond in size to A and B. E is the [pituitary] gland."

I render into English the passage of the *Fabrica* describing the pituitary apparatus. It provides a good illustration of how Vesalius was frequently anatomically misled by a false physiological theory. I find it impossible, however, to convey in English any idea of the endlessly tortuous involutions of the language of Vesalius. My own version contains less than a quarter of the number of words of the passage that it renders. I have broken up the sentences, divided the matter into categories, inserted the marginal indications as headings, omitted any of the repetitions, and tried

⁴ *De usu partium* Book IX, Chapter III.

to introduce order into a torrent of verbiage. Some may think that I therefore misrepresent my text and I agree with them. But I do not think that I have imported anything into it nor omitted from it anything that can be of interest.

TRANSLATION FROM *Fabrica* 1543, PAGES 640 AND 641

Summary of parts concerned in discharge of the phlegm

These are: (a) two passages in the brain substance; (b) a funnel shaped portion of the pia; (c) a small gland that receives the narrow end of this funnel; and (d) the passages which conduct the phlegm from the gland to the palate and to the nasal cavities.

(a) *The passages from the third ventricle.* A rather wide passage in the brain-substance⁵ descends vertically from the middle of the third ventricle toward that part of the skull where there is a cavity for the accommodation of the gland which receives the phlegm. The second passage I have seldom seen. It appears in dissection as far narrower than the first. It passes from the *iter* between the *testes* and *nates*.⁶ As it approaches the testes its anterior or inferior end leads to the front part of the other passage in its downward course and finally opens into it, forming a common channel with it.⁷

(b) *The basin into which descends the phlegm from the brain.* Near the sides of this orifice the pia, which here covers the base of the brain,⁸ forms a circular depression or process, like the rest of the pia in substance but with a network of numerous fine veins. In form it is like a funnel (*infundibulum*) for pouring wine into narrow necked flasks, being wide and round above but gradually contracting to a long narrow tube (*fistula*) which descends through its own foramen in the dura, ending at the pituitary gland. This membranous structure resembles a funnel, both in form and function, whence it is called *choanē* by the Greeks and also *pyelos*, after the shape of a drinking horn or of a conch used in the bath, for the upper part is of that shape.⁹ . . . The ancient authors who taught Anatomy to tyros, have not given a glandinous name to it. They seem, in

⁵ The anterior and lower part of the third ventricle as it narrows toward the optic recess and the infundibulum.

⁶ Corpora quadrigemina.

⁷ The nature of this 'passage' is not clear. It seems to describe the aqueductus Sylvii plus the lowest reach of the third ventricle itself.

⁸ Vesalius here prints *cerebelli* but he must mean *cerebri*.

⁹ I here omit an empty and wordy discussion as to which part is rightly called *choanē* and which *pyelos*. It is probably taken from a Latin version of Theophilus in one of the many editions of the *Articella*.

fact, to omit it from the parts in the skull cavity for want of a proper name for it.¹⁰

(c) *Account of the gland that receives the phlegm.* This gland is placed beneath the dura in a cavity proper to it, hollowed in the cuneiform bone (sphenoid), the form of which cavity it takes from pressure. It is gibbous and round below but flat above, not quite fitting along the periphery [of the cavity] being a little squarer than its circular outline. It is of a glandular substance but much harder and more compact than other glands. It is covered everywhere by pia which arises either from the bottom of the glandular recess or from the membrane that lines the skull from which the dura here recedes.¹¹ By the intervention of this membrane, here closely attached to the skull, the gland is strengthened and attached to the main trunks of the soporals (carotids) which pass forward close to it laterally. It is ridiculous that these have been held by the other professors of dissection to form a reticular plexus in man. As though, forsooth, this gland were formed just for these branches rather than determining their distribution as do other glands with their vessels.

(d) *Channels leading from the gland.* Near the sides of this gland there descend on both sides two channels. One passes forwards into a foramen which gives passage to the second pair of the cranial nerves.¹² Of this, contradicting Galen, we say that it much exceeds the foramen of the visual nerve. The other one passes posteriorly through an uneven and rough foramen or cleft,¹³ anterior and lateral to the foramen which conveys the main trunk of the carotid into the cranial cavity.

Function and plan of the parts for purging phlegm

All these things minister to the evacuation of the phlegm from the brain. The two passages which we have described as in the brain-substance (a above) lead the humour from the [third] ventricle into the infundibulum. This is made wide above, not merely because these [two passages] terminate in a single orifice, but also to embrace the ends of the right and left ventricles which are bent downwards and forward from the back part of the ventricles.¹⁴ These end here because they conduct phlegm from their own region to the infundibulum. Moreover, the infundibulum is made

¹⁰ Galen, in fact, described the infundibulum clearly enough.

¹¹ He is here trying to describe the *cisterna chiasmatis*.

¹² The second cranial nerves in the notation of Vesalius, are those that we call oculomotor. The large foramen to which he refers

in the next sentence is the superior orbital fissure.

¹³ The foramen lacerum.

¹⁴ Vesalius is describing a non-existent passage from the inferior horn of the ventricle to the infundibulum.

wide to collect phlegm from above the corpus callosum and the cavities around it, led thither by the pia. For if such a humour descend from either the front or hind part of the corpus callosum, which is arranged like a vault, it can flow down to the pia at the base of the brain and thence slip into the broad end of the infundibulum. The infundibulum, receiving phlegm from all these channels, then narrows down to conduct it through the single foramen made specially for it in the dura, and lets it flow unharmed into the centre of the gland. The gland, by some sympathetic quality [*familiaritas*] of its substance sustains the shock of the flow and, so far as I can conjecture, protects the bone against injury, receiving this phlegm and letting it gradually flow down from its surface on every side without forming drops.

The phlegm flow sthrough all the foramina for the veins, arteries and nerves that pierce the base of the skull. There is none specifically for the phlegm, unless perhaps that cleft round the front and sides of the foramen that carries the main trunk of the carotid.¹⁵ What Galen invents concerning holes like those of a sponge or of a sieve is ridiculous, since there is no hole of this type under the gland.

I would rather have you consider this matter from the structure of the cuneiform bone [sphenoid] on the one hand and from the viscosity and substance of the humour on the other. Weigh it carefully, you who are so devoted to the opinions of authors. Accuse me of impiety as if I were utterly confounding the conclusions of Galen as well as those of all the professors of dissection whom I have read, by which conclusions those authors think to lure us to admiration of our Founder. They do not consider that had God created that bone in the way that they feign, how little foresight He would then have shown. He has in fact made the bone continuous for the accommodation of the phlegm. So far is He from having built it pierced with special foramina (as they themselves invent), that that part of the skull is pierced by many holes for the nerves, veins and arteries. Nay the cuneiform bone [sphenoid] at the very spot where the gland lies on it, has within two large cavities¹⁶ opening by two holes into the cavity of the nose. And if these cavities be absent, as we have once seen them to be in the course of dissection,¹⁷ then the bone itself is there found to be solid like the heel and ankle bones. This shows that there is no discharge of phlegm through special foramina or cavities in it.

¹⁵ Superior orbital fissure.

¹⁶ The sphenoidal sinuses.

¹⁷ The sphenoidal sinuses hardly exist in

children and do not attain full development until about the age of puberty.

The phlegm therefore descends to the palate through those foramina which pass towards the palate, but mainly through the foramen of the second pair of nerves near the root of the eyes. It goes thence through a spacious foramen¹⁸ and along many other foramina unknown to other professors of dissection, to the cavity of the nose.

Doubtless here again someone will wonder why I have not enumerated passages leading the phlegm to the sinuses of the organs of smell.¹⁹ It is simply because I do not believe that any phlegm whatever is thus purged. I for my part marvel at their effrontery who have not blushed to write that the phlegm is discharged from the anterior ventricles to the nose through those delicate processes of the brain which we ascribe to the organ of smell. For there is absolutely no passage in them, nor are they in men of sufficient size to provide a passage for the discharge. Add to this that no duct for phlegm to the olfactory sinuses can be imaged which could possibly discharge into them such phlegm as reaches than except perhaps one in front of the corpus callosum. This may perhaps happen when the brain is afflicted by excess of phlegm. And then there is no natural flux of phlegm through the nostrils; but rather an itching, heat, pain, and loss of the power of smell, and other symptoms of that kind. These things arise frequently, as we experience daily in catarrhs which reach the top of the nose, and which we call 'colds' (*gravedines*).

Thus if we consider the matter exactly it must be confessed that no phlegm descends through the sinuses through cribriform or spongiform foramina when man functions according to the law of nature. But if, by some accident, phlegm does go through those channels, the flux is against nature, and then the foramina adjacent to the gland do not discharge all the phlegm but some descends towards the foramen for the transmitting of the dorsal marrow;²⁰ thence it flows to the back and then along the cavities of the nerves,²¹ sometimes to the arms, sometimes to the legs, sometimes to the muscles of the loins, sometimes into other places.²² I will not discuss how far nature is to blame for having made ducts, for the liquid and watery phlegm, so open and spacious in the cavity of the skull and yet so tortuous and narrow and bent in the eighth bone of the head.²³

¹⁸ That is to say with the oculomotor nerves through the superior orbital fissure.

¹⁹ The general medieval view, with which Vesalius is expressing disagreement, was that phlegm was purged from the brain through the cribriform plate of the ethmoid.

²⁰ The foramen magnum.

²¹ Vesalius regards the nerves as tubes. They were the normal channels for the *spiritus animalis* (see pages 15 and 16).

²² Vesalius is trying to explain the many general symptoms that often accompany nasal catarrhs.

²³ That is the sphenoid.

(To be continued)

The London Years of Benjamin Waterhouse

JOSIAH CHARLES TRENT*

ON the seventh of March, 1775, Benjamin Waterhouse, then a young man of twenty-one, boarded the ship *Thomas* in the harbor of Newport, Rhode Island, the last ship to have left the blockaded port of Boston. Having served an apprenticeship in medicine under Dr. John Halliburton of Newport, Waterhouse was on his way to complete his professional training abroad. He was leaving behind him a country on the verge of armed rebellion against its king. Six years later, in the course of his long homeward journey, he was to hear that Cornwallis had surrendered at Yorktown.¹ Throughout the Revolution, in which Waterhouse, Quaker bred, could have taken no active part even had he stayed at home he pursued his medical studies in London, Edinburgh, and Leyden, taking his doctor's degree at the latter university on the nineteenth of April, 1780. He returned to Newport in June, 1782, to take his place as one of the most learned citizens of the new republic, and also one of its most opinionated citizens, one must add.

During the formative years abroad, particularly those spent in London, Waterhouse experienced much that contributed to his development. The friends and acquaintances he made there influenced him greatly and profoundly affected his later attitudes and opinions. Examination of his London years, therefore, may give us a better understanding of what motivated his actions on his return to America. Obviously, in this brief study, we can concern ourselves only with the more general phases of his life in London and must leave the details of his medical education for future analysis.

When Waterhouse arrived in London, in April, 1775, he was cordially received by his mother's cousin, the learned and philanthropic physician, John Fothergill.² Warmly interested in the American colonies and concerned for their welfare, Dr. Fothergill favored all measures aiming to-

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¹ Letter from Waterhouse to Jared Sparks, Cambridge, April 30, 1838; original in Harvard College Library.

² In the preface to his *Essay on Junius and His Letters* (Boston, Gray and Bowen, 1831), Waterhouse gives a brief autobiographical

sketch, from which many of the above statements are drawn. See also the extensive quotations from a manuscript memoir by Waterhouse, in William Dunlap, *History and Progress of the Arts of Design in the United States* (New York, George P. Scott and Co., 1834, I, 162 ff.).

ward the creation of a better understanding between the English and the Americans. Waterhouse later wrote:

Fothergill went so far as to express in print a wish, that the British government would promote *scholarships* for Americans in their universities; and that they would give posts and benefits in this country to such Americans as had studied in England preferably to others, and that the government should permit such youths to pass to Europe in the King's ships *gratis*. Dr. Fothergill thought that this would unite more firmly characters of the first order by their mixing with the British at the universities, and diffusing thus a spirit of inquiry after America, of which country the English were strangely ignorant, and thus cement friendships on both sides; and that this would be a more lasting benefit to each country than all the ships and armies that could be sent across the Atlantic. Few if any Englishmen was better acquainted with the American colonies than Dr. Fothergill.³

Thus Fothergill's political views, as well as family interest and his own benevolent temperament, led him to extend a generous patronage to his young American kinsman.

Dr. Fothergill sponsored Waterhouse's medical studies at Edinburgh, where he spent nine months, beginning in the fall of 1775, and at Leyden, where he matriculated in October, 1778. The years intervening between his return from Edinburgh and his departure for Leyden, and probably some of his Leyden vacations, were spent in London, his chief residence being Dr. Fothergill's house in Harpur Street, Bloomsbury.⁴ Waterhouse gives a pleasant picture of his association with his patron:

Dr. Fothergill practised forty years at the court end of London, was Physician to many of the nobility, and most of its old families, and occasionally was consulted by the first rank in the kingdom. His prudence and delicacy were equal to his wisdom; yet it would be difficult for an affable man to conceal entirely his opinion of the characters occupying different ranks in authority, from one who prudently sought information. Nearly every night, during three years, I, with my transcript Lectures and common-place book, sat at the same table with that industrious philanthropist, from eight o'clock to eleven, both of us exercising our pens in our own way. Had I possessed any of the *Boswellian* ambition, I had the best opportunity of compiling a *Fothergilliana* . . .⁵

From this intimate association, Waterhouse undoubtedly profited greatly. In his writings he lets fall occasional crumbs of moral or medical

³ *Essay on Junius*, pp. 245-246.

⁴ In 1776, while "walking the hospitals," Waterhouse took quarters, apparently temporary, in Gracechurch Street (Dunlap *op. cit.*, I, 171). The Leyden vacations were chiefly spent in expeditions on the continent (see "Sketch of the Life of Benjamin Waterhouse, M. D.," by "R.," in *The Polyanthos*,

May, 1806, p. 77); but we know that Waterhouse was in London in the summer of 1780 (*Essay on Junius*, p. 247).

⁵ *Essay on Junius*, pp. xiii-xiv. Fothergill occasionally employed Waterhouse as his secretary, in transcribing for the press various essays on American affairs (*ibid.*, p. 246).

wisdom derived from his mentor. Inveighing against the pernicious effects of wine — its tendency to create a “deficiency of bile” — he adds: “My venerable preceptor, DR. FOTHERGILL cured such complaints with fresh made *porter*,” then, regretfully, “By the time London porter arrives in this country it contains too much vinegar to be serviceable in these cases.”⁶ And Waterhouse’s *Essay Concerning Tussis Convulsiva, or, Whooping Cough* is not only full of respectful references to Fothergill, but is also dedicated to that physician:

THE AUTHOR DEDICATES THIS ESSAY . . . TO THE MEMORY OF DOCTOR JOHN FOTHERGILL, A MAN VERY LEARNED, WISE, AND PIOUS; WHO, DURING HALF A CENTURY, WAS REGARDED AS THE FIRST PHYSICIAN OF THE FIRST CITY IN THE WORLD: THE FOUNDER AND DIRECTOR OF HIS STUDIES; IN NAME, HIS PROAVUNCULUS, IN EFFECT, HIS FATHER.⁷

Waterhouse “attended . . . occasionally some of Fothergill’s own practice,” though not, it is to be presumed, such illustrious patients as the heads of the houses of Northumberland and Portland, or Lords Camden, Shelburne, and Mansfield.⁸ These, however, his residence with Fothergill permitted him occasionally to see, together with the prominent men of science who frequented the house of the great doctor. It was here, no doubt, that Waterhouse met the philosopher, Joseph Priestley, of whom he later wrote: “I knew the man before he grew old and sour, if not acrid, the common case with organic bodies kept long in a hot place.”⁹

Not in Harpur Street alone, but also at his Cheshire estate, Lea Hall, to which he retired for two months every autumn, Fothergill gathered about him the ablest physicians of the day. To this place, in the early fall of 1778, Dr. John Haygarth came from the nearby town of Chester to lay before Fothergill his plans for abolishing the small-pox from Great Britain by the use of general inoculation, carefully controlled. Waterhouse was then staying with Fothergill; to the several conferences which followed, he contributed information about the measures taken in Rhode Island to prevent the spread of small-pox. The same information, more fully expressed, he conveyed to Haygarth in a letter dated from Lea Hall, Sep-

⁶ *Cautions to Young Persons Concerning Health*, Cambridge, Printed at the University Press by W. Hilliard, 1805, p. 21, n.

⁷ Boston, Munroe and Francis, 1822. This essay contains (p. 140) another pleasant glimpse of Fothergill: “How often has that excellent physician remarked to me, while riding through the streets of London, and noticing the thin waistcoats of the young

men passing on the sidewalks, which they very generally put on about *Easter* — ‘now we shall have the annual *silk waistcoat fever*.’ ” Waterhouse also dedicated his Leyden dissertation to Fothergill.

⁸ *Essay on Junius*, pp. v, xiv.

⁹ Letter from Waterhouse to Jared Sparks, Cambridge, October 4, 1836; original in Harvard College Library.

tember 25, 1778. This letter was the first of a long correspondence, lasting over twenty years; in the course of that time Waterhouse, who at first opposed Haygarth's theory that the variolous infection was restricted to a narrow sphere, gradually became an advocate of the doctrine.¹⁰

It was John Haygarth who, in 1800, sent to Waterhouse the first sample of cow-pox virus.¹¹ The American doctor's earliest knowledge of Jenner's great discovery, however, came to him from another friend acquired in these London years. John Coakley Lettsom, indebted, like Waterhouse, to the patronage of Fothergill, was an established physician when Waterhouse arrived in London. Lettsom's practice, so pressing that it allowed him no holiday for nineteen years, probably prevented his seeing much of the young American student.¹² It is certain, however, that they met: Lettsom frequently visited Fothergill, and we have Waterhouse's own statement that Lettsom was among the persons he persuaded to sit for his friend Gilbert Stuart.¹³ That their meeting led to friendship is sufficiently established by the cordial correspondence which they carried on for many years thereafter. Throughout the 1790's, Lettsom sent numerous gifts to Waterhouse, or to Harvard College through Waterhouse, including books, stuffed animals and birds, seeds, and a large collection of mineralogical specimens. And in November, 1798, Lettsom first informed Waterhouse of the discovery of small-pox vaccination, and sent him, early in 1799, a copy of the "golden treatise of Jenner."¹⁴

Lettsom was one of those who in 1774 joined with Dr. Hawes to form the Humane Society of London, established to disseminate knowledge concerning the means of resuscitating persons apparently drowned. Lettsom, or perhaps Hawes himself, may have imparted his enthusiasm to Waterhouse, who, in 1782, made an unsuccessful attempt to arouse interest in the formation of an American humane society, and who succeeded in starting such a movement in 1785 with the help of Dr. Henry Moyes of Edinburgh. The "recovery of persons drowned and seemingly dead" was a matter of general interest in that day, and Fothergill, as well as Cullen of

¹⁰ For the material in this paragraph, see John Haygarth, *Medical Transactions*, London, Cadell and Davies, 1801, I, [193]-200; II, [1]-2; III, 259 ff., 319-320, 569.

¹¹ *Ibid.*, I, 211; Waterhouse, *A Prospect of Exterminating the Small Pox Part II*, Cambridge, Printed for the author by William Hilliard, 1802, p. [5].

¹² T. J. Pettigrew, *Memoirs of the Life and Writings of the Late John Coakley Lettsom*,

London, Longman, 1817, II, 53; "R.," in the *Polyanthos* (May, 1806, p. 76), expresses surprise that there is no reference to Lettsom in the journal which Waterhouse kept throughout this period.

¹³ Dunlap, *op. cit.*, I, 172; see also Pettigrew, *op. cit.*, II, 492.

¹⁴ Waterhouse, *Prospect of Exterminating the Small Pox Part II*, p. 77.

Edinburgh and John Hunter, both of whom Waterhouse knew, published their opinions on the subject.

Natural history seems to have engrossed these eighteenth century physicians of Fothergill's circle as completely as subjects more directly in the way of their profession. Waterhouse was not slow in following suit, though his enthusiasm was kept within bounds:

During the residence of several years in the family of the celebrated Dr. Fothergill in London, he acquired there a taste for the works of nature; but has endeavoured to follow the advice of his venerable kinsman, "never to suffer Natural History to supersede Medicine; but to regard it only as an agreeable adjunct to the healing art."¹⁵

Fothergill's own particular love was botany. He planted a large botanical garden at Upton near Stratford in 1762, and a smaller one at his Cheshire estate. Waterhouse visited both these places and wrote an effusive description of the former:

We shall close . . . with an account of the botanical garden reared by that celebrated physician and naturalist, Dr. FOTHERGILL, at the village of Upton, six miles from the royal exchange, London. The wall of this garden enclosed above five acres of land; a piece of water, a winding canal forming it into two divisions. A glass door from the winter parlour gave entrance to a long range of hot and green-house apartments, of nearly two hundred feet extent, containing upward of three thousand four hundred distinct species of exotics whose foliage wore a perpetual verdure, and formed a beautiful and striking contrast in the winter to the shrivelled natives in the cold, open air. In the open ground, with the returning spring, about three thousand distinct species of plants and shrubs vied in verdure with the natives of Asia and Africa. It was in this spot, where a perpetual spring was realized, that the elegant proprietor sometimes retired to contemplate the vegetable productions of the four quarters of the globe united within his domain, where the spheres seemed transported, and the arctic circle joined to the equator. (pp. 114-115)

In these surroundings the beauty of the night-blowing cereus played upon the "delicate susceptibility" of Waterhouse's youthful nerves:

The first time the *Botanist* gazed at this transitory beauty, in the garden of Fothergill, and saw its sudden change, it was with sensations he never can forget. He confesses that in the vast assemblage of flowers that adorn the earth, this flaunting beauty caught his eye, and excited strongly his youthful admiration. (p. 226)

¹⁵ Waterhouse, *The Botanist*, Boston, Joseph T. Buckingham, 1811, p. xiv. The page numbers given in the following paragraphs refer to this work.

tember 25, 1778. This letter was the first of a long correspondence, lasting over twenty years; in the course of that time Waterhouse, who at first opposed Haygarth's theory that the variolous infection was restricted to a narrow sphere, gradually became an advocate of the doctrine.¹⁰

It was John Haygarth who, in 1800, sent to Waterhouse the first sample of cow-pox virus.¹¹ The American doctor's earliest knowledge of Jenner's great discovery, however, came to him from another friend acquired in these London years. John Coakley Lettsom, indebted, like Waterhouse, to the patronage of Fothergill, was an established physician when Waterhouse arrived in London. Lettsom's practice, so pressing that it allowed him no holiday for nineteen years, probably prevented his seeing much of the young American student.¹² It is certain, however, that they met: Lettsom frequently visited Fothergill, and we have Waterhouse's own statement that Lettsom was among the persons he persuaded to sit for his friend Gilbert Stuart.¹³ That their meeting led to friendship is sufficiently established by the cordial correspondence which they carried on for many years thereafter. Throughout the 1790's, Lettsom sent numerous gifts to Waterhouse, or to Harvard College through Waterhouse, including books, stuffed animals and birds, seeds, and a large collection of mineralogical specimens. And in November, 1798, Lettsom first informed Waterhouse of the discovery of small-pox vaccination, and sent him, early in 1799, a copy of the "golden treatise of Jenner."¹⁴

Lettsom was one of those who in 1774 joined with Dr. Hawes to form the Humane Society of London, established to disseminate knowledge concerning the means of resuscitating persons apparently drowned. Lettsom, or perhaps Hawes himself, may have imparted his enthusiasm to Waterhouse, who, in 1782, made an unsuccessful attempt to arouse interest in the formation of an American humane society, and who succeeded in starting such a movement in 1785 with the help of Dr. Henry Moyes of Edinburgh. The "recovery of persons drowned and seemingly dead" was a matter of general interest in that day, and Fothergill, as well as Cullen of

¹⁰ For the material in this paragraph, see John Haygarth, *Medical Transactions*, London, Cadell and Davies, 1801, I, [193]-200; II, [1]-2; III, 259 ff., 319-320, 569.

¹¹ *Ibid.*, I, 211; Waterhouse, *A Prospect of Exterminating the Small Pox Part II*, Cambridge, Printed for the author by William Hilliard, 1802, p. [5].

¹² T. J. Pettigrew, *Memoirs of the Life and Writings of the Late John Coakley Lettsom*,

London, Longman, 1817, II, 53; "R.," in the *Polyanthos* (May, 1806, p. 76), expresses surprise that there is no reference to Lettsom in the journal which Waterhouse kept throughout this period.

¹³ Dunlap, *op. cit.*, I, 172; see also Pettigrew, *op. cit.*, II, 492.

¹⁴ Waterhouse, *Prospect of Exterminating the Small Pox Part II*, p. 77.

Edinburgh and John Hunter, both of whom Waterhouse knew, published their opinions on the subject.

Natural history seems to have engrossed these eighteenth century physicians of Fothergill's circle as completely as subjects more directly in the way of their profession. Waterhouse was not slow in following suit, though his enthusiasm was kept within bounds:

During the residence of several years in the family of the celebrated Dr. Fothergill in London, he acquired there a taste for the works of nature; but has endeavoured to follow the advice of his venerable kinsman, "never to suffer Natural History to supersede Medicine; but to regard it only as an agreeable adjunct to the healing art."¹⁵

Fothergill's own particular love was botany. He planted a large botanical garden at Upton near Stratford in 1762, and a smaller one at his Cheshire estate. Waterhouse visited both these places and wrote an effusive description of the former:

We shall close . . . with an account of the botanical garden reared by that celebrated physician and naturalist, Dr. FOTHERGILL, at the village of Upton, six miles from the royal exchange, London. The wall of this garden enclosed above five acres of land; a piece of water, a winding canal forming it into two divisions. A glass door from the winter parlour gave entrance to a long range of hot and green-house apartments, of nearly two hundred feet extent, containing upward of three thousand four hundred distinct species of exotics whose foliage wore a perpetual verdure, and formed a beautiful and striking contrast in the winter to the shrivelled natives in the cold, open air. In the open ground, with the returning spring, about three thousand distinct species of plants and shrubs vied in verdure with the natives of Asia and Africa. It was in this spot, where a perpetual spring was realized, that the elegant proprietor sometimes retired to contemplate the vegetable productions of the four quarters of the globe united within his domain, where the spheres seemed transported, and the arctic circle joined to the equator. (pp. 114-115)

In these surroundings the beauty of the night-blowing cereus played upon the "delicate susceptibility" of Waterhouse's youthful nerves:

The first time the *Botanist* gazed at this transitory beauty, in the garden of Fothergill, and saw its sudden change, it was with sensations he never can forget. He confesses that in the vast assemblage of flowers that adorn the earth, this flaunting beauty caught his eye, and excited strongly his youthful admiration. (p. 226)

¹⁵ Waterhouse, *The Botanist*, Boston, Joseph T. Buckingham, 1811, p. xiv. The numbers given in the following paragraphs refer to this work.

Through Fothergill, Waterhouse became acquainted with one of the rising botanists of the day, William Curtis, "under whose tuition he herbarized in the environs of London two years in succession" (p. 112, n.). Curtis was at that time and until his death lecturer and demonstrator in the Physic Garden at Chelsea, which was supplied with plants by the regular excursions of a society of London apothecaries. He neglected his own lucrative practice as an apothecary to devote his time to botanizing and, in 1777, to the publication of an elaborately illustrated account of all the plants in or about London, his *Flora Londinensis*. Fothergill at this point withdrew his patronage from Curtis rather than encourage him in what the physician believed to be an extravagant proceeding (pp. 134-135), but Dr. Lettsom gave regular and generous aid to Curtis.¹⁶ As each new and splendid number of the *Flora Londinensis* appeared, Fothergill woefully predicted to Waterhouse that the expense of the work would result in the ruin of its author. The error of these prophecies Waterhouse later recorded: . . . Fothergill, though possessed of the "*perspicax oculus*" in a preeminent degree, did not then see, that the mild and silent Curtis was imbued with the persevering spirit of Linnaeus. He little thought, that this meek and quiet man would finally effect all that he meditated; and that to the *Flora Londinensis* he would add the *Monthly Botanic Magazine*, and to both a *Botanic Garden*! . . . Under a mild and playful disposition, William Curtis was animated with a persevering spirit, that, in a different walk of life, might have wearied out the patience of a Xenophon, and discouraged Hannibal himself. (p. 135)

Waterhouse goes on to describe in much detail, and as if he had seen it, the botanical garden of Curtis at Brompton; this garden, however, was not planted until after the departure of Waterhouse for America. Other botanical acquaintances whom Waterhouse may have met at the house of Fothergill were Sir Joseph Banks and Dr. Daniel Solander, who had carried their botanizing as far afield as Iceland and the South Sea Islands. Botany was the subject principally dealt with in the natural history lectures which Waterhouse later gave in America; a series of these was published in the *Monthly Anthology* (1804-1808), and in book form in 1811 (see Fig. 2).

Experimental philosophy, in which he attended the lectures of James Ferguson, and mineralogy also occupied Waterhouse, at least briefly, in London. His introduction to the latter subject came through the lectures of the eccentric Emanuel Mendes Da Costa, who was assisted by Fothergill throughout these years.¹⁷ Waterhouse evidently had little lasting profit

¹⁶ Pettigrew, *op. cit.*, I, 162.

¹⁷ *Polyanthos*, May, 1806, p. 76; R. Hingston Fox, *Dr. John Fothergill and His Friends*, London, Macmillan, 1919, pp. 212-213.

Ferguson died in 1776; Waterhouse probably heard a few of his lectures in the summer of 1775.

from Da Costa's instruction, for on undertaking the care of the mineralogical collection given to Harvard by Dr. Lettsom he admitted that he "was less acquainted with that department of natural history than perhaps any other" and had undertaken a course of reading on the subject.¹⁸ Certainly no enthusiasm for mineralogy, but rather a hint of the reverse, appears in the phrases with which he presented natural history to the medical students of Harvard:

Natural History is not introduced here barely to amuse, but with a hope that by cultivating a taste for the works of nature some solid advantage may arise. The American may possibly be reminded, in his researches, that while factitious wealth is dug up from the bowels of the earth, *our* only true and solid riches must be drawn from its *upper stratum*, from thence man receives a reward of his honest industry by a kind of perpetual miracle wrought in his favour.¹⁹

As has been observed, Waterhouse paid due heed to Fothergill's injunction that he not allow natural history to cause him to stray from the prosecution of his medical studies. In London, he walked the hospitals — Guy's and St. Thomas's, he assisted Fothergill in his practice, he diligently attended medical lectures. On Monday, Wednesday, and Friday evenings, from seven to eight, October through April of each year, the renowned John Hunter gave "at No. 28, in the Hay-market, a Course of Lectures on the Principles and Practice of SURGERY," in which he introduced "so much of the ANIMAL OECONOMY as may be necessary to illustrate the Principles of those Diseases which are the Object of Surgery."²⁰ Honorarium, four guineas the course. No enterprising student would neglect such an opportunity, and Waterhouse duly presented himself at the feet of the "prince of physiologists," to whom, as he later wrote, he owed "more, than to any public medical teachers he ever heard."²¹ Maxims culled from the Hunter lectures crop up in Waterhouse's *Essay Concerning Tussis Convulsiva*: "John Hunter used to tell us, that a very severe blow on the pit of the stomach, killed the *whole man*, so instantly and outright, that the muscles had not time to become rigid" (p. 54). And further on:

The celebrated John Hunter, was indeed great in every department of our art: a physician, in the original sense of the word, a great anatomist, and a complete surgeon. I have often heard him remark, that excessive purging of children, was a baneful source of that derangement of the lymphatic absorbent system, which

¹⁸ Letter from Waterhouse to Lettsom, Cambridge, October 18, 1799; quoted by Pettigrew, *op. cit.*, II, 466.

¹⁹ *A Synopsis of a Course of Lectures, on the Theory and Practice of Medicine, Part the First*, Boston, Printed by Adams and Nourse, 1786,

p. vi.

²⁰ Stephen Paget, *John Hunter: Man of Science and Surgeon*, (1728-1793), New York, Longmans, Green & Co., 1897, p. 102.

²¹ *Prospect of Extirminating the Small Pox Part II*, p. 90, n.

leads directly to scrophula; which leads indirectly to consumption. His sagacity here coincided with the opinion of an author, he, most probably, never read; I mean the learned Gaubius . . . (p. 82).

There are indications that Waterhouse's acquaintanceship with Hunter progressed beyond the mere attendance at the lectures. "John Hunter," Waterhouse writes, "once told me that 'he loved to be puzzled, for then he was sure he should learn something valuable.'"²² In a letter to Dr. Samuel L. Mitchill, written in 1825, Waterhouse compares the characters of "John Hunter, whom I knew well" and Samuel Thomson, the discoverer of lobelia.²³ Hunter's dissecting room at his house on Jernyn Street was open to those who attended the course of lectures, and it is probable that Waterhouse there improved the acquaintanceship; Hunter's immense collection of pathological and anatomical specimens, which overflowed the house, must have attracted the young student as much as the demonstrations in the dissecting room. Edward Jenner, once Hunter's house-pupil, was practising surgery in Gloucestershire during Waterhouse's stay in London, and Waterhouse, later to become Jenner's chief disciple in America, neither met him in England "nor heard his name."²⁴

In his *Essay Concerning Tussis Convulsiva*, Waterhouse pairs the name of John Hunter with that of another Scot:

I first learnt the great importance of the mucous membrane from the proelections of Drs. George Fordyce, and John Hunter, men who reflected honour upon Great Britain. From Fordyce's "*symptoms of irritation*," and from Hunter's inflamed mucous membrane, "*teazing the constitution into an hectic*," I discovered the first glimmering of that light, which is now penetrating the dark recesses of the animal economy. (p. 36)

George Fordyce, "a philosophical physician much admired by his pupils," had the honor of Waterhouse's attendance at his medical and chemical lectures in Essex Street every morning "during between two and three years."²⁵ Fordyce lectured from seven to ten, six mornings a week the whole year through, on chemistry, materia medica, and the practice of physic. Waterhouse took careful notes, which he later had "fairly transcribed and bound up."²⁶ He found them of service, no doubt, when he became Harvard's first Professor of the Theory and Practice of Physic.

²² Letter from Waterhouse to Edward Jenner, Cambridge, April 24, 1801; quoted by John Baron, *Life of Edward Jenner, M.D.*, London, Henry Colburn, 1838, I, 440.

²³ See "Life and Medical Studies of Samuel Thomson," *Bulletin of the Lloyd Library of Botany, Pharmacy and Materia Medica*, No. 11

(1909), p. 61.

²⁴ Waterhouse, *Essay on Junius*, p. x.

²⁵ Dunlap, *op. cit.*, I, 172.

²⁶ Waterhouse, autograph document, dated February 24, 1812; original in the Harvard College Library.

Waterhouse's admiration for Fordyce was such that he proposed to his fellow-students that they subscribe a half-guinea each to have a portrait of Fordyce made by Gilbert Stuart. They readily complied; Waterhouse collected the money, passed it on to Stuart, then worried himself into a serious illness in trying to persuade Stuart to begin the painting. The half-guineas were finally refunded by Dr. Fothergill.²⁷

This episode was only one of many connected with Gilbert Stuart that served to enliven Waterhouse's London life. The two had been boyhood friends in Newport. Stuart arrived in London in November, 1775, after Waterhouse had left for Edinburgh. When Waterhouse returned, in the summer of 1776, he found Stuart "in lodgings in York-buildings, with but one picture on his easel." Waterhouse took measures to procure the impoverished painter quarters "between the houses" of two of Fothergill's nieces, and to secure commissions for him. Fothergill obligingly ordered a portrait of Waterhouse; Lettsom and William Curtis sat for portraits, "and so did two beautiful young ladies, sisters; one with dark hair as the tragic muse, the other with reddish hair and light blue eyes, as the comic muse" (I, 172). Nevertheless, Stuart obstinately remained impoverished, levying on Waterhouse's pocket-money, and occasionally being rescued from sponging-houses by his friend. Such behavior was naturally irritating:

With Stuart it was either high tide or low tide. In London he would sometimes lay a bed for weeks, waiting for the tide to lead him on to fortune . . . There was a caprice in Mr. Stuart's character as provoking to his best friends and nearest connexions, as it was unaccountable to the public. (I, 167)

On the other hand, a reproach may perhaps be laid at Waterhouse's own door. Shortly after his arrival in London in 1775, he had become acquainted with the famous American painter, Benjamin West, then historical painter to the king. Stuart came to London with the express purpose of becoming West's pupil, but Waterhouse evidently made no effort to introduce him to West until 1778, by which time Stuart had conquered his own diffidence sufficiently to seek other means of securing the introduction (I, 173-174).²⁸

Despite these difficulties, the two young Americans seem to have enjoyed a constant companionship. Waterhouse writes:

Stuart and I agreed to devote one day in the week to viewing pictures, wherever we could get admittance. We used Maitland's description of London for a guide.

²⁷ This anecdote and the following account of the Stuart-Waterhouse friendship are drawn from Waterhouse's own statements,

quoted by Dunlap, *op. cit.*, I, 162 ff.

²⁸ [Jane Stuart] "The Youth of Gilbert Stuart," *Scribner's Monthly*, XIII (1877), 642.

We found nothing equal to the collection at the Queen's Palace or Buckingham House. We made it a point also to walk, together through all the narrow lanes of London, and having a pocket map, we marked such streets and lanes as we passed through with a red lead pencil, and our map was full two thirds streaked over with red when we received some solemn cautions and advice to desist from our too curious rambles. We were told by some who knew better than we did, that we run a risk of bodily injury, or the loss of our hats and watches, if not our lives, when we gave up the project. We had, however, pursued it once a week for more than two years, and never experienced other than verbal abuse, chiefly from women, and saw a great deal of that dirty, monstrous, overgrown city, containing to appearance, no other people than the natives of Britain and Ireland, and a few Jews, not laughing and humming a song like the populace of Paris, but, wearing a stern, anxious, discontented phiz. (I, 173)

The two enjoyed numerous conversations — on anatomy and botany, no doubt, as well as music and painting, for Waterhouse testifies to the tact with which Stuart adapted his talk to the company in which he found himself. They had painting sessions, Waterhouse serving as model: the Stuart portrait of Waterhouse, now in the Redwood Library at Newport (see Fig. 3), is perhaps one of the results of these sittings; Waterhouse's description of another is sufficiently delightful to make us sincerely regret its loss:

I once prevailed on [Stuart] to try his pencil on a canvass of a three-quarter size, representing me with both hands clasping my right knee, thrown over my left one, and looking steadfastly on a human skull placed on a polished mahogany table. (I, 174)

In 1778, shortly before Waterhouse's departure for Leyden, Stuart painted a self-portrait, which he gave to his friend; it was hanging in Waterhouse's Cambridge home when Stuart visited him there in 1805, and the artist was gratified to find his early work so creditable.

A loyal American living in England while his country was rebelling against British dominion, Waterhouse had occasion for much anxiety: "Medicine and Politics were mixed together in a young, ardent, and anxious brain, far distant from his suffering country!"²⁹ In his patron's home, he was sure of sympathy in his concern about American affairs. Fothergill and many of his associates, though loyal Englishmen, saw the justice of the American cause. Only a month before Waterhouse reached London, Fothergill was collaborating with Benjamin Franklin and David Barclay in an effort to avert hostilities. In his patron's home, also, Waterhouse was in the way of receiving early information on each new develop-

²⁹ *Essay on Junius*, p. viii.

ment; thus, in 1776, he was introduced to Thomas Paine's *Common Sense* shortly after its appearance:

[Fothergill] was family-physician to most of the old nobility, as well as many of the new, and was occasionally called into consultation at the bed-side of the highest in rank and station; by which he had an opportunity of knowing the sentiments of the *prime*, as well as the secondary movers of the political machine, — its wheels as well as its leaden weights. I well remember Lord Shelburne calling at Dr. Fothergill's, and leaving a copy of "*Common Sense*," at its very first appearance in London. For several days the good Doctor appeared taciturn and abstracted. Within a week perhaps, he gave me the pamphlet to read, charging me to let no one see it. I read it as a Spaniard or Portuguese would read an interdicted book in the vicinity of the inquisition. It gave to my thoughts a new direction, and occupied my mind day and night. It raised in me a new train of prospective ideas,—glorious ones, be sure, yet dreadful, — "the battle of the warrior, with confused noise, and garments rolled in blood!"³⁰

This infection with Paine's ideas gave way to a tremendous enthusiasm for the letters of Junius, an enthusiasm which remained with Waterhouse for many years; he later attempted to prove the identity of this mysterious writer with the great Lord Chatham (see Fig. 4). Another public figure who attracted the notice of Waterhouse was the celebrated John Wilkes, who on the tenth of April, 1775, presented to George III a remonstrance against the government's adoption of a coercive policy toward the American colonies. Waterhouse reached London probably only a few days after this occurrence; he visited Wilkes shortly thereafter:

I had some personal knowledge of this champion of the people's rights, having had letters of introduction to him in the year 1775, when he was Lord Mayor of London. I went directly from Dr. Fothergill's in Harpur Street to wait on his Lordship at the City Mansion-House. What a contrast, — the *simplex munditiis* of the one, and the *peacockism* of the other!³¹

Waterhouse did not meet Benjamin Franklin, the friend of Fothergill, in London, since Franklin left England on March 25, 1775. This must have been a grave disappointment, for we have Waterhouse's assurance that he had venerated Franklin's name since boyhood: "of great men, he was the one I wished most to see." During his Leyden period, however, he met Franklin in France:

³⁰ *Ibid.*, pp. 246-247. Waterhouse here and elsewhere (*ibid.*, p. 245; letter to Jared Sparks, June 6, 1833, in Harvard College Library) writes that Fothergill told him that Franklin was responsible for the foundation and framework of this essay, while Paine

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never was I so much captivated by the company and conversation of any old man. His wisdom and his wit were so happily blended as to prove that they spring from the same root, provided they are nourished by a soil of good humor.³²

Though Waterhouse's republican views thus received sympathy in the circle of Fothergill, he found another state of affairs in the streets of London. There he heard his countrymen maligned with "virulent language" and in an "illiberal, anti-Christian style." This was in the spring of 1777, "when Burgoyne's fine army was about embarking for America, in the highest flow of spirits and the utmost glee, like a hunting party with the best omens of a fine chase!"³³

I remember that new maps of its route, just from the press, were as plenty in London, in the hands of American refugees, as pamphlets. They [the army] talked of little else than driving all before them triumphantly from the Lakes to Boston. But, ere the equinoctial season was passed, that well-appointed army laid down their arms at Saratoga . . .³⁴

In the streets of London, Waterhouse saw hundreds of miserable refugees from America, all bitterly complaining against the rebels. Two such Tories Waterhouse knew from Newport days — an English comedian named Simpson, who had practised law in Newport for some years after being rescued from a ship which caught fire in the harbor, and his wife. The couple often visited Waterhouse at Fothergill's house and were sympathetically received:

I forgot their faults when I felt for their sufferings. I cautioned them emphatically not to cast any harsh reflections on the Americans, or their Congress in the hearing of any one of that house, and they followed my advice. Had he not taken it I would have reminded him that he was an English brand snatched out of the fire, by a people who drove him from their land for his ingratitude.³⁵

In the latter part of the year 1778, Dr. Fothergill sent Waterhouse to Leyden "to acquire, as he smilingly said, a little of the Dutch phlegm."³⁶ John Adams has provided us with a brief description of Waterhouse as he was during the Leyden years:

Dr. Waterhouse . . . had resided three or four years, and taken the degree of Dr. in medicine, in the university of Leyden, where I first became acquainted with him. During part of the time of my residence in Leyden, I found Waterhouse and my two sons boarded in the same house. I took apartments in it, and finding him,

³² Letter from Waterhouse to Jared Sparks, Cambridge, June 6, 1833; original in Harvard College Library.

³³ *Essay on Junius*, p. 390.

³⁴ *Ibid.*, pp. 357-358.

³⁵ Letter from Waterhouse to the Reverend Romeo Elton, January 25, 1840; original in the New York Academy of Medicine.

³⁶ *Essay on Junius*, p. vi.

though a sprightly genius, very studious and inquisitive, as well as sociable, I had no inquiries to make, but whether his moral character was good, and whether he was a loyal American. As to his morals, I could hear of no reproach or suspicion; as to his politics, though he came over from England, he came from the guardianship and pupilage of Dr. Fothergill, who was as good a friend to America, as any loyal Englishman could be. He had inscribed himself on the records of matriculation in the university of Leyden, *Liberæ Reipublicæ Americanæ Federatæ Civis*, and his conversation was in the style of a good American.³⁷

This sketch would probably serve equally well for the Benjamin Waterhouse who, in June, 1782, returned to his native Newport. The sprightliness had perhaps been alloyed with a trifle too much of the "Dutch phlegm" prescribed by Fothergill, for certainly his sense of humor suffered in later years; the inquisitiveness, despite Leyden studies in law and history, as well as medicine, continued unabated. Waterhouse was still an enthusiast when he took up his American career, an enthusiast in his own studies and projects, and a man who expected equal zeal from others. In Fothergill's house, the hub of scientific London, he had seen how enlightened men brought their energies to bear on the problems of science and society. He returned to America prepared to do likewise. On the thirteenth of July, 1782, the very summer of his return, seven people drowned in Newport harbor when a pleasure boat upset. Waterhouse, with his knowledge of London's Humane Society and of similar organizations on the continent, published an account of their methods in the *Newport Mercury*.³⁸ He attempted to arouse interest in the formation of a Rhode Island humane society; the attempt failed.

In 1783, the Harvard Medical School opened, and Waterhouse was appointed its first Professor of the Theory and Practice of Physic. His hopes and energies ran high; in a paper which he read before the American Academy of Arts and Sciences in this year, he proposed that the physicians of America collaborate in preparing a history of epidemic diseases, rivalling the great accomplishment of Sydenham:

In laudable exertions shall Englishmen go beyond us?

Times as well as Countries have their wastes and desarts. What period so proper as this, for cultivation — the dawn of peace? — We want the *will* more than the *ability* for investigating the more abstruse parts of nature; and I am persuaded that it is in Phylosophy as in Politics, that mens ambitions are generally

³⁷ Correspondence of the late President Adams, Boston, Everett and Munroe, 1809-[1810], p. 572.

³⁸ See the preface to Waterhouse's dis-

course, "The Principle of Vitality," in *The Botanist*, p. [233]; *Newport Mercury*, July 20, 1782.

never was I so much captivated by the company and conversation of any old man. His wisdom and his wit were so happily blended as to prove that they spring from the same root, provided they are nourished by a soil of good humor.³²

Though Waterhouse's republican views thus received sympathy in the circle of Fothergill, he found another state of affairs in the streets of London. There he heard his countrymen maligned with "virulent language" and in an "illiberal, anti-Christian style." This was in the spring of 1777, "when Burgoyne's fine army was about embarking for America, in the highest flow of spirits and the utmost glee, like a hunting party with the best omens of a fine chase!"³³

I remember that new maps of its route, just from the press, were as plenty in London, in the hands of American refugees, as pamphlets. They [the army] talked of little else than driving all before them triumphantly from the Lakes to Boston. But, ere the equinoctial season was passed, that well-appointed army laid down their arms at Saratoga . . .³⁴

In the streets of London, Waterhouse saw hundreds of miserable refugees from America, all bitterly complaining against the rebels. Two such Tories Waterhouse knew from Newport days — an English comedian named Simpson, who had practised law in Newport for some years after being rescued from a ship which caught fire in the harbor, and his wife. The couple often visited Waterhouse at Fothergill's house and were sympathetically received:

I forgot their faults when I felt for their sufferings. I cautioned them emphatically not to cast any harsh reflections on the Americans, or their Congress in the hearing of any one of that house, and they followed my advice. Had he not taken it I would have reminded him that he was an English brand snatched out of the fire, by a people who drove him from their land for his ingratitude.³⁵

In the latter part of the year 1778, Dr. Fothergill sent Waterhouse to Leyden "to acquire, as he smilingly said, a little of the Dutch phlegm."³⁶ John Adams has provided us with a brief description of Waterhouse as he was during the Leyden years:

Dr. Waterhouse . . . had resided three or four years, and taken the degree of Dr. in medicine, in the university of Leyden, where I first became acquainted with him. During part of the time of my residence in Leyden, I found Waterhouse and my two sons boarded in the same house. I took apartments in it, and finding him,

³² Letter from Waterhouse to Jared Sparks, Cambridge, June 6, 1833; original in Harvard College Library.

³³ *Essay on Junius*, p. 390.

³⁴ *Ibid.*, pp. 357-358.

³⁵ Letter from Waterhouse to the Reverend Romeo Elton, January 25, 1840; original in the New York Academy of Medicine.

³⁶ *Essay on Junius*, p. vi.

though a sprightly genius, very studious and inquisitive, as well as sociable, I had no inquiries to make, but whether his moral character was good, and whether he was a loyal American. As to his morals, I could hear of no reproach or suspicion; as to his politics, though he came over from England, he came from the guardianship and pupilage of Dr. Fothergill, who was as good a friend to America, as any loyal Englishman could be. He had inscribed himself on the records of matriculation in the university of Leyden, *Liberæ Reipublicæ Americanæ Federatæ Civis*, and his conversation was in the style of a good American.³⁷

This sketch would probably serve equally well for the Benjamin Waterhouse who, in June, 1782, returned to his native Newport. The sprightliness had perhaps been alloyed with a trifle too much of the "Dutch phlegm" prescribed by Fothergill, for certainly his sense of humor suffered in later years; the inquisitiveness, despite Leyden studies in law and history, as well as medicine, continued unabated. Waterhouse was still an enthusiast when he took up his American career, an enthusiast in his own studies and projects, and a man who expected equal zeal from others. In Fothergill's house, the hub of scientific London, he had seen how enlightened men brought their energies to bear on the problems of science and society. He returned to America prepared to do likewise. On the thirteenth of July, 1782, the very summer of his return, seven people drowned in Newport harbor when a pleasure boat upset. Waterhouse, with his knowledge of London's Humane Society and of similar organizations on the continent, published an account of their methods in the *Newport Mercury*.³⁸ He attempted to arouse interest in the formation of a Rhode Island humane society; the attempt failed.

In 1783, the Harvard Medical School opened, and Waterhouse was appointed its first Professor of the Theory and Practice of Physic. His hopes and energies ran high; in a paper which he read before the American Academy of Arts and Sciences in this year, he proposed that the physicians of America collaborate in preparing a history of epidemic diseases, rivalling the great accomplishment of Sydenham:

In laudable exertions shall Englishmen go beyond us?

Times as well as Countries have their wastes and deserts. What period so proper as this, for cultivation — the dawn of peace? — We want the *will* more than the *ability* for investigating the more abstruse parts of nature; and I am persuaded that it is in Philosophy as in Politics, that mens ambitions are generally

³⁷ Correspondence of the late President Adams, Boston, Everett and Munroe, 1809-[1810], p. 572.

³⁸ See the preface to Waterhouse's dis-

course, "The Principle of Vitality," in *The Botanist*, p. [233]; *Newport Mercury*, July 20, 1782.

proportioned to their capacities, for Providence seldom sends a man into the world with the inclination to attempt great things who has not abilities equal to their performance.³⁹

He pointed out that the European world was watching the development of American civilization. West and Copley had shown what American genius could do in art. In science, however, achievement depended not so much upon individual genius as upon the united efforts of many men. To this earnest plea for collaboration, Waterhouse apparently received no adequate response. His failure to arouse American men of science to concerted effort under his leadership was not due entirely to the state of apathy existing among his colleagues. Politics, religion, personal animosities, and jealousy perhaps played a larger part than has been brought out heretofore, but this complicated period of Waterhouse's life must await future consideration.

The knowledge of natural history which Waterhouse acquired in London, he revived for lectures at Brown University in 1786 and 1787, and for similar lectures thereafter at Harvard. His efforts seem to have received neither true appreciation nor adequate remuneration. He conducted an extensive correspondence with his English friends, who generously advised him and supplied him with books and specimens; the specimens apparently got in the way of his fellow professors, and petty differences arose. Remembering Fothergill's garden at Upton and the teachings of Curtis, he proposed to plant a botanical garden at Cambridge, but was discouraged by the prevailing indifference to his plan.

All of these projects took time and effort; no one of them was received with the appreciation that Waterhouse probably felt they deserved, or with the enthusiasm they might have met, say, in London circles. And his practice, too, was a disappointment. He could remember Fothergill, the fortunate physician, consorting with the highest of the nobility and the greatest of the scientists in England. This was what a physician should be — a man of dignity and learning, whose position was secure, whose opinions on political and economic questions, as well as medical matters, were respectfully received, a man sufficiently well paid to take time from his practice for literary projects. In America, however, a physician was something quite different, as Waterhouse informed Dr. Lettsom in 1794: Should I ever execute what I am constantly revolving in my mind, "A View of Society and Manners, with the Natural History of New England," I should send it to England, and publish it there without a name. The fact is, I have no taste for

³⁹ *Of Epidemic Diseases*, Cambridge, Harvard University Press, 1942, pp. 5, 7.

the practice of physic as it is conducted in this country. It is not worth a man's attention. I feel such a mighty difference between transcribing from the great volume of Nature, and practising among the very vulgar, that is, conforming to the whims and nonsense of old women and silly people, that I am sometimes almost determined to renounce it for ever. I know how a London physician gets his bread, but with us it is widely different: a man like me of a weakly frame, addicted to study, is liable to be called out five or six miles on horseback in a severe winter night, and to remain out all night, and to receive (in the course of a year) a guinea for it! We are obliged to be physician, surgeon, apothecary, and tooth-drawer, all under one; and if we are not attentive to small things, and if we do not give consequence to trifles, we are dropped for some one who does. You are spoiled (say some of my friends) for practice in this country, by living so much with Dr. Fothergill, which is in a great measure true — a charming specimen of my intended view of society and manners!⁴⁰

By 1801, the early enthusiasm which had seen America as virgin soil whence energy and enthusiasm might reap great harvests, had sadly waned. Waterhouse wrote to young Mathias Spalding, his erstwhile pupil, then in England: "... I rejoice as often as I call to mind the fortunate incidents that have combined to place you in the high road of improvement you are now in. You will learn more in one week in London, than in America during twenty."⁴¹ And in the same year he had occasion to complain to Jenner of lack of cooperation from even the most enlightened of his countrymen:

The characters in America most distinguished for wisdom and goodness are firm believers in your doctrine. They are not, however, over-forward in assisting me against this new irruption of the Goths. I do not wish them to do more than make cartridges, or at least hand them. At present they leave me too much alone, and it is probable will only come to my assistance when I do not *want* them. Had I not a kind of apostolic zeal I should at times feel a little discouraged. The natives of America are skilful in bush-fighting.⁴²

As affairs in Cambridge went steadily against him, these complaints continued. In 1810, he described his misfortunes to Lettsom, and added:

Were I a single man, and without children, I would go to England; if not to live there, at least to die there. You do not knock a man on the head in Britain because he exerts himself more than his neighbors do.⁴³

And in the *Essay Concerning Tussis Convulsiva* (1822), which contains so

⁴⁰ Waterhouse to Lettsom, Cambridge, November 25, 1794; quoted in Pettigrew, *op. cit.*, II, 464-465.

⁴¹ Letter from Waterhouse to Mathias Spalding, Cambridge, October 20, 1801; original in the author's collection.

⁴² Waterhouse to Jenner, Cambridge, November 5, 1801; quoted in Baron, *op. cit.*, I, 473.

⁴³ Waterhouse to Lettsom, Cambridge, May 8, 1810; quoted in Pettigrew, *op. cit.*, II, 485.

many references to the London physicians Waterhouse had known, London is described as "the first city in the world, where physic, including surgery, is more cultivated, and more honored, and better rewarded than in any other city that is, or ever was" (pp. xiii-xiv, n.).

Lest it be supposed that Waterhouse unduly exaggerated the difficulties of his position, the evidence of another, more distinguished, American physician may be presented. In 1786, Benjamin Rush, who also had known London and the circle of Fothergill, wrote to Dr. Lettsom:

You have suggested a number of excellent hints for the improvement and extension of knowledge in America. But, my friend, who shall undertake to carry such hints into execution? Philosophy does not here, as in England, walk abroad in silver slippers; the physicians (who are the most general repositories of science) are chained down by the drudgery of their professions; so as to be precluded from exploring our woods and mountains. Besides, there are not men of learning enough in America as yet, to furnish the stimulus of literary fame to difficult and laborious literary pursuits. I have felt the force of this passion; Alas! my friend, I have found it in our country to be nothing but "avarice of air."⁴⁴

By virtue of his long period of arduous study abroad, Waterhouse was able to place before his students at Harvard the choicest medical knowledge of Europe, and to point their way in paths of study outside the province of medicine. He was prepared to devote himself completely to the academic life, but his professor's salary was inadequate; to live he had to practice, and practice for the American physician of those times was drudgery. With drudgery he could not be content: he had lived too long in the house of Fothergill, and knew too well how a physician should live. This brief review of Waterhouse's London years leads us to the conclusion that his experiences abroad incapacitated him, in a sense, for the life he had to lead at home.

⁴⁴ Rush to Lettsom, Philadelphia, October 26, 1786; quoted in Pettigrew, *op. cit.*, II, 428.

TRENT: *The London Years of Benjamin Waterhouse*



FIG. 1. Dr. John Fothergill, painted from memory after his death by Gilbert Stuart. portrait is reproduced through the courtesy of The Pennsylvania Academy of the Fine

THE
BOTANIST.
BEING
THE BOTANICAL PART
OF A
COURSE OF LECTURES
ON
NATURAL HISTORY,
DELIVERED IN THE UNIVERSITY AT CAMBRIDGE.
TOGETHER WITH A
DISCOURSE
ON
THE PRINCIPLE OF VITALITY.

BY BENJAMIN WATERHOUSE, M. D.

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Fellow of the Medical Society, London;—of the Academy of Arts and Sciences, Belles Lettres, Inscriptions, and Commerce, Marseilles; and of the National Medical School of France; and
Professor of the Theory and Practice of Physic in the University of Cambridge, Massachusetts.

BOSTON :

PUBLISHED BY JOSEPH T. BUCKINGHAM,
WINTER-STREET.

1811.

TRENT: *The London Years of Benjamin Waterhouse*



FIG. 3. Benjamin Waterhouse, painted by Gilbert Stuart, perhaps in London in 1776. This portrait is reproduced with the permission of the Redwood Library and Athenæum, Newport, Rhode Island, and through the courtesy of the Frick Art Reference Library, New York City.

AN ESSAY
ON
JUNIUS AND HIS LETTERS;

EMBRACING

A SKETCH OF THE LIFE AND CHARACTER OF
WILLIAM PITT, EARL OF CHATHAM,
AND MEMOIRS OF CERTAIN OTHER DISTINGUISHED INDIVIDUALS;

WITH

REFLECTIONS HISTORICAL, PERSONAL, AND POLITICAL,
RELATING TO THE AFFAIRS OF GREAT BRITAIN AND AMERICA,
FROM 1763 TO 1785.

By **BENJAMIN WATERHOUSE, M. D.,**
MEMBER OF SEVERAL MEDICAL, PHILOSOPHICAL, AND LITERARY SOCIETIES
IN EUROPE AND AMERICA.

As to the Book itself, it can say this in its behalf, that it does not merely confine itself
to what its title promises, but expatiates freely into whatever is collateral.

Harris's Hermes.

BOSTON:
GRAY AND BOWEN.
1831.

Fig. 4. The title page of the *Essay on Junius*. This work, the chief literary effort of Waterhouse, grew out of the political interests of his London years.

A Note on William Blake and John Hunter

JANE M. OPPENHEIMER*

WILLIAM BLAKE resisted the restrictions of contemporary thought as only genius can; and his darkly brilliant and erratic mind must therefore remain, for longer than we care to contemplate, an enigma defying analysis by the usual methods of intellectual history. Yet even Blake, on occasion, betrayed himself as receptive to influence by the spirit of his times. Because of his very independence, we are the more grateful for any slight insight we may attain into his relationships with the minds of his contemporaries.

Blake's preoccupation with anatomy, and his ability to transfigure it both by written word and graven line, are among his most outstanding traits, and it has been one of the glories of literature and of art that to him

... every Generated Body in its inward form
Is a garden of delight & a building of magnificence.¹

For intellectual history it becomes also good fortune, since we are thereby enabled to inquire into the scientific sources upon which he drew for the raw data which he was to convert to poetry.

For, mystic though he was, Blake spoke in the words and the imagery not only of nature but of natural science itself:

Each outcry of the hunted Hare
A fibre from the Brain does tear;²

The Microscope knows not of this nor the Telescope: they alter
The ratio of the Spectator's Organs, but leave Objects untouch'd.
For every Space larger than a red Globule of Man's blood
Is visionary;³

... every Moment has a Couch of gold for soft repose,
(A Moment equals a pulsation of the artery);⁴

In gnawing pain drawn out by her lov'd fingers, every nerve

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¹ Blake, *Poetry and prose*, p. 515.

² *Ibid.*, p. 118.

³ *Ibid.*, p. 522.

⁴ *Ibid.*, p. 521.

She counted, every vein & lacteal, threading them among
Her woof of terror.⁵

The common man might well count nerves and veins, but the poet who numbers the lacteals is conversant with the technical language of anatomy. Nor can it be pure coincidence that Blake echoed the anatomical nomenclature for the cochlea and the labyrinths and the petrous bone when he described the ear as "a little shell"⁶ and wrote of its "labyrinthine intricacy"⁷ and specified how in development

Two Ears in close volutions
From beneath his orbs of vision
Shot spiring out and petrified
As they grew.⁸

Surely it was from the professional anatomists, as well as from the Swedenborgians, that Blake drew his consciousness of the dynamics of organic function. But who of these could have whispered into his sensitive ear? For the clue we may turn to his own sparse records.

"I only wish Jack Tearguts had had the cutting of Plutarch," he had Sipsop say in *An island in the moon*. "He understands Anatomy better than any of the Ancients. He'll plunge his knife up to the hilt in a single drive, and thrust his fist in, and all in the space of a Quarter of an hour. He does not mind their crying, tho' they cry ever so. He'll swear at them & keep them down with his fist, & tell them that he'll scrape their bones if they don't lay still & be quiet. What the devil should the people in the hospital that have it done for nothing make such a piece of work for?"

"Hang that," said Suction; "Let us have a song." Then the Cynic sang —

1.

When old corruption first begun,
Adorn'd in yellow vest,
He committed on flesh a whoredom —
O, what a wicked beast!

2.

From then a callow babe did spring,
And old corruption smil'd
To think his race should never end,
For now he had a child.

⁵ *Ibid.*, pp. 280-81.

⁶ *Ibid.*, p. 643.

⁷ *Ibid.*, p. 720.

⁸ *Ibid.*, p. 250.

3.

He call'd him surgery, & fed
The babe with his own milk,
For flesh & he could ne'er agree,
She would not let him suck.

4.

And this he always kept in mind,
And form'd a crooked knife,
And ran about with bloody hands
To seek his mother's life.

5.

And as he ran to seek his mother
He met with a dead woman,
He fell in love & married her,
A deed which is not common.

6.

She soon grew pregnant & brought forth
Scurvy & spott'd fever.
The father grin'd & skipt about,
And said, "I'm made for ever!"

7.

"For now I have procur'd these imps
I'll try experiments."
With that he tied poor scurvy down
& stopt up all its vents.

8.

And when the child began to swell,
He shouted out aloud,
"I've found the dropsy out, & soon
Shall do the world more good."

9.

He took up fever by the neck
And cut out all its spots,
And thro' the holes which he had made
He first discover'd guts.⁹

There is more than a little evidence that this scathing and obscene indictment of experimental and scientific surgery was directed by Blake towards

⁹ *Ibid.*, pp. 873-74.

a specific individual. *An island in the moon*, written around 1787, is said to have been intended as a satire on the "dull and pedantic talk at Mr. Mathew's,"¹⁰ small gratitude for the fact that Mr. and Mrs. Mathew, together with Flaxman, were among Blake's earliest partisans. Some, but not all, of the characters have been identified,¹¹ Sipsop, for instance, as Thomas Taylor, who translated Plotinus and Porphyry, Inflammable Gas as Joseph Priestley, Quid the Cynic as Blake himself.

Who can Jack Tearguts have been, in the 1780's, but Jack Hunter, who founded experimental surgery? Hunter must have been himself well-known at the Mathews'. Mathew was afternoon preacher at St.-Martin's-in-the-Fields, in the parish where the Hunters lived. Mrs. Mathew was a literary hostess whose popular assemblies were attended by at least two of Mrs. John Hunter's good friends, Mrs. Carter¹² and Mrs. Montagu,¹³ if not by Mrs. Hunter herself. The Mathews' son was described by John Thomas Smith,¹⁴ another frequenter of their home, as "John Hunter's favourite pupil."¹⁵ And what other Jack, then in London, who practiced surgery, could claim like Jack Hunter to "understand Anatomy better than any of the Ancients," and followed so characteristically the precept "Why think? why not try the experiment?"¹⁶

Indeed, if not at the Mathews', it may have been even among men of his own métier that Blake came to know Hunter or to know of him. "What is Call'd the English Style of Engraving," said Blake, "such as proceeded from the Toilettes of Woollett & Strange . . . can never produce Character & Expression. I knew the Men intimately, from their Intimacy with Basire, my Master."¹⁷ John Hunter knew the men intimately, too, no doubt: Basire engraved many of his own scientific plates, and Strange directed the execution of the plates for his brother William Hunter's *Anatomy of the human gravid uterus*. And John Hunter, who admired the art of engraving and the artists, counted Woollett as his friend. "Poor Woollett the engraver," he said in one of his lectures, "died under one of these

¹⁰ Wright, *Life of Blake*, I, 18. Mr. Mathew was the Reverend William Henry Mathew of 27 Rathbone Place.

¹¹ *Loc. cit.*; also, Keynes in Blake, *Writings*, I, 351.

¹² Elizabeth Carter, a distinguished student of literature and the classics, and a scholar for whom Samuel Johnson had the greatest respect. Mrs. John Hunter, herself a poetess, inscribed to her "Carisbrook Castle, a poem, with notes" (A. Hunter, *Poems*, p. 39).

¹³ Elizabeth Robinson Montagu, the center of the "bluestocking" literary group in London.

¹⁴ Keeper of Prints and Drawings at the British Museum. He was born in a hackney coach while his father was hurrying to Jermyn Street for William Hunter the obstetrician, John Hunter's brother.

¹⁵ Smith, *A book for a rainy day*, p. 96. It must certainly have been during the 80's that young Mathew was studying with Hunter; in 1792 he took the degree of M.B. at Cambridge.

¹⁶ Paget, *John Hunter*, p. 107; letter from Hunter to Jenner.

¹⁷ Blake, *Poetry and prose*, p. 811.

cancer-curers: he was under my care when this person took him in hand. He had been a life-guardsman, I think, and had got a never-failing receipt. I continued to call on Woollert as a friend."¹⁸

But whether Blake heard the words of the anatomists at the Mathews' or at Basire's, whether directly or indirectly from John Hunter, he made them his own. For all his scurrilous condemnation of them, it was certainly from the bestirring prophets of physiological anatomy, and not by intuition nor divine revelation, that Blake abstracted the facts around which his creative genius wove its magic.

There have been few poets who have so reviled natural science as Blake, nor owed it more. "Science is the Tree of Death,"¹⁹ cried Blake. "Nature has no Outline," he wrote, "but Imagination has. Nature has no Tune, but Imagination has. Nature has no Supernatural & dissolves: Imagination is Eternity."²⁰ The Imagination, however, craves warp for its loom. And insofar as John Hunter dominated the anatomical investigation of his day, the results of his free and high scientific imagination provided Blake with materials to transmute to beauty.

But more than that, the growing spirit of individualism which fired Hunter to instigate the experimental method animated Blake as well, and rendered possible the existence of even such a contrary genius as his. It was at least in part because Hunter walked alone boldly in science, thereby personifying his contemporaries' desire for the development of independence in all fields of endeavour, that Blake himself could find inspiration in Albion.

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¹⁸ J. Hunter, *Works*, I, 625.

¹⁹ Blake, *op. cit.*, p. 766.

²⁰ *Ibid.*, p. 769.

Pharmacopoeias as Witnesses of World History

GEORGE URDANG*

IT is not very likely that the members of the Florentine College of Physicians who at the end of the fifteenth century compiled a new formulary, were aware of the fact that they were opening up a new era of European pharmacy. This modest compilation, published in 1498 under the title *Nuovo Receptario*, is considered the first European official pharmacopoeia, i.e., the first pharmaceutical standard adapted to the needs of a certain political unit and made obligatory for the physicians and pharmacists of this unit by the authorities concerned.

It took about half a century until the example of Florence was followed in the more or less sovereign German Imperial Free Cities of Nuremberg (*Dispensatorium Pharmacopolarum . . . authore Valerio Cordo*, 1546), Augsburg (*Enchiridion sive . . . dispensatorium . . . pro Reipub. Augstburgensis Pharmacopoeis*, 1564) and Cologne (*Dispensarium usuale pro pharmacopoeis inclytæ Reipublicæ Coloniensis*, 1565), in the Spanish municipalities of Barcelona (*Concordia Pharmacopolarum Barcinonensium*, 1535) and Saragossa (*Concordia Aromatariorum Civitatis Cesaraugustæ*),¹ and in the Italian duchy of Mantua (*Antidotarium Mantuanum*, 1559).

It was for the sake of uniformity in the preparation of drugs and the adaptation of the formulas concerned to the special needs and resources of the political units involved that the official pharmacopoeias came into existence, and these reasons have undoubtedly remained predominant up to the present. Besides, however, we know that, for instance, the issuance of the Augsburg and Cologne standards so shortly after the appearance of the Nuremberg dispensatory was to a very great measure due to scientific emolument and difference of opinion as to the scope of a pharmacopoeia. That these incentives increased steadily in the course of time can easily be proved, and they were activated and given their opportunity by another and very potent factor: the rising nationalistic ideology. An own pharmacopoeia became gradually a matter of national ambition, a part and a proof

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¹ Rafael Folch y Andreu, *Die prähispanischen offiziellen Pharmakopöen und die Mitar-*

beit der Pharmazeuten, in: *Die Vorträge der Hauptversammlung [Gesellschaft für Geschichte der Pharmazie] in Basel [1934]*, Mittenwald, 1934, pp. 212-223.

of national sovereignty and unity. It is by no means unlikely that, for instance, the *Antidotarium Mantuanum* of 1559 owes its existence not so much to some urgently felt necessity as to the desire of Guglielmo Gonzaga, Duke of Mantua from 1550 to 1587, not to be outshone by the Medicean Cosimo I, Duke of Florence, under whose government the second edition of the Florentine pharmaceutical standard had appeared in 1550.

THE FLORENTINE PHARMACOPOEIAS

There is scarcely any better example of the way in which political history has been evidenced on the frontispieces and title pages of pharmacopoeias from the end of the fifteenth to the end of the eighteenth century than the Florentine *Receptario* or, as it was called since 1550, *Ricettario*. The title page of the *Receptario*, published in 1498, was conspicuous by its simplicity (Fig. 1). It carried nothing but a laconic statement of the character of the book reading in English translation as follows:

New Formulary Compiled by the Most Renowned College of the Distinguished Doctors of Art and Medicine of the Magnificent City of Florence.

The colophon, after giving the date of publication (January 10, 1498), the name of the printing company (*compagnia del dragho*)² and the names of two men active in the final preparation of the book (master Hieronymo and master Lodovico dal pozzo toscanelli), concludes with the interesting statement that the *Receptario* was brought out "at the request of the executive officers of the guild of the apothecaries." It is the seal of this guild and the mark of the printing company² which appear beneath the colophon.

Nowhere in the book are there any of the dedicatory prefaces or phrases so common in those times of autocratic government. The reason is that early in 1498 there was nobody in the city of Florence to whom such a dedication could properly (and safely!) be directed. The Medici family, whose members had lorded over the republic for about a century, had been driven out and were living in exile, their coat of arms chiseled away from their palace at the order of the "Signoria" (Executive Council), while the power of the monk and religious reformer, Girolamo Savonarola, who had grown into the actual leadership of Florence since 1494, was

² "Two books only are certainly known to bear the signature of this firm, the Marcullus of 26 November 1497 (I A 28045 — book number of the British Museum) and the

Ricettario of 10 January 1498 (I B 28059)." Catalogue of Books printed in the XVth Century now in the British Museum, London 1930, Part VI, p. 691.

L'IMPRESSO Nella inclita cipta di Firenze per la compaignia del Dragho adi. x.
 di Genaro. M. CCCC LXXXVIII. Emendato & correcto p maestro Hierony
 mo di maestro Lodouico medico & cipradino fioratino dal pozzo tofcha
 nelli: Ad istanza delli Signori Contoli della uniuersita della spetiali: el
 segno della quale si pone in questa presente charta.



INVOCO RECEPTARIO COMPOSTO DAL
 FAMOSSISSIMO COLLEGIO DEGLI
 EXIMI DOCTORI DELLA AR
 TE ET MEDICINA DEL
 LA INCLITA CIP
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FIG. 1. Title Page and Colophon of the Florentine *Receptario* of 1498.

rapidly fading. As a matter of fact, it was in the very year of publication of the *Receptario* that Savonarola was condemned to death and perished at the stake. The uncertainty of the political situation is mirrored by the deliberate and almost fearful neutrality of the title page of the first European official pharmacopoeia.

When about half a century later, in 1550, a second edition of the Florentine pharmaceutical standard appeared — from now on known as *Ricettario* — the political circumstances in Florence had changed considerably, and the title page of the new book tells the story with all possible eloquence. It is stated that this edition had been prepared by the College of Physicians on order of the *Duca Di Firenze* and it is now the duke who is honored by flattering superlatives (*illustrissimo et excellentissimo*) instead of the physicians and their college. Even the printer calls himself proudly *Stampator Ducale*.

It was the inglorious Alexander de' Medici who in 1532, through fortunate circumstances rather than his own merit, became the first Duke of Florence, a dignity which, after Alexander had been assassinated in 1537, was taken over by Cosimo de' Medici, called Cosimo I. The political changes between 1498 and 1550 are illuminated not only by the text but still more by the coat of arms printed on the title page of the new standard, by its fact as well as its kind.

The original coat of arms of the Medici showed six simple red balls without any distinction among each other on a field of gold³ and there was no diadem of any kind. In the new arms, there is not only a coronet surmounting the blazon but some other details previously lacking. The most remarkable and lasting of these new features is represented by the three royal lilies of France in the uppermost ball which were inserted into the blazon of the Medici by Louis XI of France (1423-1483)⁴ and received a special meaning and emphasis by the marriage of Catherine de' Medici, in 1533, to the French Dauphin, later King Henri II of France. Of individual rather than of lasting importance is the chain of the Imperial Order of the Golden Fleece which surrounds the blazon and was granted to Cosimo I by the Emperor Charles V. The dove beneath the crown finally may symbolize the peaceful trade of the merchant-ancestors of the present heir or his intention to reign peacefully.

Some remnants of democracy were still noticeable in the book of 1550. It was still the *Ricettario Del Arte, Et Universitate De Medici, Et Spetiali Della Citta Di Firenze*, and the dedication preceding the formulary proper was directed to the officers of the guild. When only seventeen years later, in 1567, a third and completely revised *Ricettario* was issued, this last trace of democracy had disappeared. The book of 1567 was not the work of a

³ "There is no foundation for the story that the Medici were originally doctors The story is an entire fable . . ." (G. F.

Young, *The Medici*, New York, 1923, Vol. I, p. 20).

⁴ *Ibidem*, p. 149.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OBSTETRICS AND GYNECOLOGY—Continued			
New York Polyclinic Medical School and Hospital, 345 W 50th St, New York 19	Clinical Gynecology	Arranged, 6 weeks, part time	\$10.00
	Clinical and Operative (Cadaver) Gynecology	Arranged, 6 weeks, part time	175.00
	Clinical Course in Office and General Obstetrics	Arranged, 4 weeks, part time	100.00
	Manikin Obstetrics	Arranged 4 weeks, part time	150.00
	Obstetrics and Gynecology Incl Manikin Ob and Operative Gynec (Cadaver)	Oct 1950, 2 months, full time	250.00
New York University Postgraduate Medical School, 477 First Ave New York 16	501 A Seminar in Gynecology	Oct 9-Dec 2, 2 months, full time	300.00
	502 A Gynecology Diagnosis and Office Treatment	Oct 10-Nov 6, part time	50.00
	503 A Gynecology Diagnosis and Office Treatment	Oct 9-Nov 13, part time	75.00
	504 A Obstetrics and Gynecology	Oct 2, full time, 3, 6 or 9 months	5
	505-A Gynecological Pathology	Oct 2, 9 months, part time	350.00
	506-A Cystoscopy and Endoscopy	Sept 18-Oct 20, Nov 13-Dec 15, part time	100.00
At New York University	507 A Surgical Anatomy as Applied to Gynecology ³⁵	Oct 17-Nov 16, Nov 21-Dec 19, part time	200.00
	508-A Vaginal Cytology ³⁵	Oct 10-Dec 7, Jan 2-Feb 22, part time	100.00
At Beth Israel Hospital Columbia University 630 W 168th St, New York At Mt Sinai Hospital	507 A Gynecological Endocrinology	Oct 10-Dec 9, Jan 2-Feb 24, part time	150.00
	084 A Gynecology	Sept 5-Dec 22, part time	250.00
At Margaret Hague Maternity Hospital	Gynecology PM 30 Recent Advances in Gynecology	Oct 9-14, 6 days, full time	60.00
	Obstetrics PM 80 Internship Training	First of each month, 3 months, full time	350.00
	Obstetrics PM 81 Observation Course	First of each month, 1 month, full time	100.00
	Obstetrics and Gynecology Gynecology Obstetrics	July 31-Aug 5, 1 week First Monday of Oct, 8 months, full time	25.00 500.00
OPHTHALMOLOGY AND OTOLARYNGOLOGY			
College of Medical Evangelists, 312 N Boyle Ave, Los Angeles 33			
At Los Angeles County Hospital	Histology and Histopathology of the Eye	Feb 28-June 20, 1951, part time	75.00
University of California Medical Center, San Francisco 22 At University of California Hospital, San Francisco	Ophthalmology	Jan 30-Mar 20, 1951, part time	30.00
	Otolaryngology	Oct 31-Dec 19, part time	30.00
University of California Medical School, University Extension, Los Angeles 24	Ophthalmology	Sept 11-15, 1 week, full time	60.00
University of Florida Graduate School of Medicine, 2033 Riverside Ave, Jacksonville, Fla At Miami, Fla	Ophthalmology	Nov-Dec, part time	Not given
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Midwinter Seminar in Ophthalmology and Otolaryngology	Jan 1951, 1 week	40.00
	Two week Clinical Course in Ophthalmology	First of every week, full time	50.00
	Two week Clinical Course in Otolaryngology	First of every week, full time	50.00
	Clinical and Didactic Course in Reconstructive Surgery of the Nasal Septum and the External Nasal Pyramid	To be announced 8 weeks, part time	150.00
Northwestern University, 303 E Chicago Ave, Chicago At Wesley Memorial Hospital	Postgraduate Course on Endaural Otolologic Surgery and Audiology	Oct, 4 weeks full time	500.00
University of Illinois College of Medicine, 1853 W Polk St, Chicago	Basic Otolaryngology	Oct 2-June 19, 9 months, full time	750.00
	Postgraduate Course in Ophthalmology	Oct 2-May 25, 8 months full time	700.00
State University of Iowa College of Medicine, Iowa City, Iowa At University Hospital	Postgraduate Conference in Otolaryngology	Nov 27-Dec 1, 5 days	75.00
Tulane University School of Medicine, Dept of Ophthalmology, 1430 Tulane Ave, New Orleans 12	Gonioscopy ³⁵	Jan 8-13 full time	100.00
Ophthalmological Study Council, 243 Charles St, Boston At Westbrook Jr College, Portland, Maine	Lancaster Courses in Ophthalmology	June 24-Sept 9, 11 weeks	300.00
Tufts College Medical School, Postgraduate Division 30 Bennet St, Boston 11	Ophthalmology	Oct 2-27 Jan 8-Feb 2, 4 weeks, part time	70.00*
	Ophthalmoscopy	Oct 30-Nov 24 part time	50.00*
	Neuro Ophthalmology	Nov 13-17 full time	75.00*
	Basic Sciences in Ophthalmology, Clinical Ophthalmology and Ocular Pathology, Fundamentals in Refraction and Ocular Motility	Sept 25-Mar 3, 21 weeks	700.00*
Harvard Medical School, Courses for Graduates, 25 Shattuck St, Boston	Histopathology Otolaryngology	Nov 6-Dec 2, 4 weeks, full time	Not given
	Audiology	Dec 4-16, full time	Not given
	Anatomy of the Head and Neck	Jan 2-Feb 7, full time	Not given
	Anatomy of the Temporal Bone	Feb 19-Mar 31, full time	Not given
	Basic Ophthalmology	Sept 11-June 9, 9 months, full time	900.00
Wayne University College of Medicine, 1512 St Antoine St Detroit	Histopathology of Ear, Nose and Throat	Dec 4-Mar 10, 12 weeks, part time	25.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave, Rochester, Minn			
At Palmer House, Chicago, Ill	Instruction Courses	Oct 9-13, 5 days	1.50 per hour
	Home Study Course in Ophthalmology, Home Study Course in Otolaryngology	Sept 1-June 30, 10 months, part time	10.00

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued			
Washington University Medical School 4580 Scott Ave St Louis 10	Ophthalmology	Oct 1950 8 months	\$500.00
	Otolaryngology	Oct 1950 8 months	\$500.00
Essex County Medical Society 3340 Clinton St Newark N J	Medical Ophthalmology	Oct 1950 part time 10 sessions	60.00
At Newark Eye and Ear Infirmary	Otolaryngology	Oct 1950 20 sessions part time	100.00
At Seton Hall Campus South Orange			
Joint Committee on Postgraduate Education 1313 Bedford Ave. Brooklyn 16 ²	External Eye Diseases	Oct 1950 8 weeks part time	20.00
At Jewish Sanitarium and Hospital for Chronic Diseases	Ophthalmoscopy	Oct 1950 8 weeks part time	20.00
	Advanced Otolaryngology	Arranged 2 weeks part time	250.00
	Ophthalmology Including Cadaver Ophthalmology and Refraction	Arranged 3 months part time	300.00
	Motor Anomalies	Arranged 4 weeks part time	50.00
	Refraction	Arranged 4 weeks part time	100.00
	Otolaryngology and Ophthalmology Including Cadaver Eye Ear Nose and Throat and Refraction	Oct and Jan, 3 months part time	600.00
New York Polyclinic Medical School and Hospital 345 W 50th St, New York 19	Otolaryngology and Ophthalmology	Oct 1 9 months full time	1 000.00
	Operative Ophthalmology (Cadaver)	Arranged 4 weeks part time	100.00
	Operative Otolaryngology	Arranged 4 weeks part time	100.00
	Operative Nose and Throat (Cadaver)	Arranged 4 weeks part time	150.00
	Seminar in Ophthalmology and Otolaryngology	Arranged 5 days part time	50.00
	Clinical Ophthalmology	Six weeks or 3 months arranged part time	75 100
	Clinical Otolaryngology	Six weeks or 3 months arranged part time	100 150
	Clinical Ophthalmology and Otolaryngology	Six weeks or 3 months arranged full time	150 250
University of Rochester School of Medicine 260 Crittenden Blvd Rochester N Y	Ophthalmology	June 25-29 full time	Not given
Columbia University 630 W 168th St New York	Otolaryngology PM 1 Bronchoscopy ²⁵	Oct 9-27 2 weeks part time	250.00
At Columbia Presbyterian Medical Center	Ophthalmology PM 6 ² Glaucoma ²⁵	Oct 16-Dec 11 2 months part time	30.00
At Montefiore Hospital	Ophthalmology PM 30 Slit Lamp Microscopy of the Living Eye ²⁵	Oct 5-Nov 30 part time	40.00
	Ophthalmology PM 31 Ophthalmic Surgery ²⁵	Oct 4-Dec 6 part time	90.00
	Ophthalmology PM 32 Refraction and Extraocular Muscles ²⁵	Oct 6-Dec 22 part time	80.00
	Ophthalmology PM 33 Glaucoma and the Pharmacology of the Autonomic Nervous System ²⁵	Sept 28-Nov 16 part time	20.00
	Ophthalmology PM 34 Histopathology of the Eye ²⁵	Oct 5-Dec 18 part time	55.00
	Ophthalmology PM 35 Bacteriology of the Eye and External Diseases ²⁵	Oct 2-Dec 18 part time	45.00
At Mt Sinai Hospital	Ophthalmology PM 36 Embryology of the Eye ²⁵	Oct 4-Nov 22 part time	40.00
	Ophthalmology PM 37 Physiological Optics ²⁵	Oct 9-Dec 11 part time	45.00
	Ophthalmology PM 38 Ophthalmoscopy Advanced Course ²⁵	Oct 4-Nov 22 part time	40.00
	Ophthalmology PM 40 Techniques of Systematic Examination of the Eye and Functional Testing ²⁵	Sept 27-Dec 13 part time	25.00
	Otolaryngology PM 39 Practical Pathology of the Ear ²⁵	Oct 17-Nov 24 part time	50.00
	Ophthalmology 39B Ophthalmoscopy in General Practice	Sept 28-Dec 21 part time	25.00
	Ophthalmology PM 42 Medical Ophthalmology	Sept 26-Dec 12 part time	25.00
At: Columbia Presbyterian Medical Center	Otolaryngology PM 10 Advanced Otolaryngology ²⁵	Any 3 consecutive months between Sept and May full time	150.00
	571 A Motor Anomalies of the Eye Part I ²⁵	Oct 16-21 full time	100.00
	572 A Motor Anomalies of the Eye Part II ²⁵	Oct 23-27 full time	75.00
	573 A Ophthalmic Neurology ²⁵	Nov 6-10 part time	50.00
	574 A Surgery of the Eye ²⁵	Oct 30-Nov 4 full time	100.00
	575 A Differential Diagnosis with the Slit Lamp ²⁵	Nov 6-10 part time	75.00
	576 A Ophthalmology ²⁵	Sept 25-June 16 full time	600.00
	577 A External Diseases of the Eye ²⁵	Nov 6-10 part time	75.00
New York University Postgraduate Medical School 477 First Ave New York 16	578 A Ocular Expressions of Systemic Diseases ²⁵	Nov 6-10 part time	75.00
	591 A Intensive Course in Basic Science	Sept 18-29 part time	75.00
	592 A Histopathology of the Ear Nose and Throat	Sept 18-29 part time	75.00
	593 A Basic Sciences of Otolaryngology	Oct 2-June 15 full time	600.00
	594 A Endaural Surgery	Nov 13-Nov 24 full time	125.00
	595 A Bronchoscopy Esophagoscopy and Laryngeal Neck Surgery	Jan 15-26 full time	200.00

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued			
At New York Eye and Ear Infirmary	6SA1 Clinical Histopathology of the Eye ³⁵	Sept-June, part time	\$50.00
	6SA2 Histopathology of the Eye ³⁵	Sept-June, arranged	100.00
	6SA3 Bacteriology, Serology, Immunology ³⁵	Sept-June, arranged	50.00
	6SA4 External Diseases of the Eye ³⁵	Sept-June, arranged	50.00
	6SA6 Physiologic Optics ³⁵	Sept-June, arranged	100.00
	6SA7 Plastic Eye Surgery ³⁵	Sept-June, arranged	100.00
	6SA8 Anomalies of Extraocular Muscles ³⁵	Sept-June, arranged	50.00
	6SA9 Slit Lamp Microscopy ³⁵	Sept-June, arranged	50.00
	6SA10 Ophthalmoscopy ³⁵	Sept-June, arranged	50.00
	6SA11 Glaucoma ³⁵	Sept-June, arranged	50.00
	6SA12 Operative Eye Surgery ³⁵	Sept-June, arranged	100.00
	6SA13 Refraction ³⁵	Sept-June, arranged	100.00
	6SA14 Perimetry ³⁵	Sept-June, arranged	50.00
	6SB1 Clinical Otology ³⁵	Sept-June, arranged	75.00
	6SB2 Operative Surgery of the Ear and Surgery of the Nasal Sinuses ³⁵	Sept-June, arranged	200.00
	6SB3 Bronchoesophagology and Laryngeal Surgery ³⁵	Sept-June, arranged	250.00
	6SC1 Course in Allergy of the Eyes and Upper Respiratory Tract ³⁵	Sept-June, arranged	100.00
	6SC2 Roentgenology ³⁵	Sept-June, arranged	75.00
	6SC3 Roentgenology ³⁵	Sept-June, arranged	50.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Otolaryngology	Oct-May full time	800.00
Virginia Society of Ophthalmology and Otolaryngology, Richmond, Va	Ophthalmology	Oct-May full time	800.00
	Postgraduate Course in Ophthalmology and Otolaryngology ³⁵	Nov 28-29 (eye) Nov 30-Dec 1 (ENT)	25.00
ORTHOPEDIC SURGERY			
University of California, University Extension, San Francisco 22	Bone and Joint Surgery	Dec 4-8, full time	Not given
Cook County Graduate School of Medicine, 427 S Honore St, Chicago 12	Anatomy of the Extremities on the Cadaver	Oct 4, 10 weeks part time	125.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St, Boston 15	Treatment of Fractures and Other Traumatic Conditions	Oct 30-Nov 4, full time	150.00 *
At Massachusetts General Hospital			
Columbia University, 630 West 108th St, New York	Orthopedic Surgery PM 80 Survey of the Essentials of Orthopedics	Oct 5-Dec 21, part time	100.00
At Hospital for Joint Diseases			
New York Academy of Medicine, 2 E 103d St, New York 20	Musculo Skeletal System	Oct 9-20, full time	10.00
	Orthopedic Surgery for General Surgeons	Arranged, 3 months, part time	75.00
New York Polyclinic Medical School and Hospital, 345 W 50th St, New York	Operative Orthopedics (Cadaver)	Arranged, 5 sessions part time	100.00
	Advanced Orthopedics of the Foot	Arranged, 8 sessions, part time	100.00
	582 A Orthopedics in General Practice	Nov 20-25 full time	60.00
New York University Postgraduate Medical School, 477 First Ave New York 16	583 A Functional Anatomy in Relation to Orthopedics	Sept 11-22 Jan 15-26 part time	75.00
	584 A Basic Sciences in Relation to Orthopedic Surgery	Sept 25-June 16, 9 months full time	600.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Orthopedics	Oct-May, full time	800.00
PATHOLOGY			
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Personal Course in Surgical Pathology	By appointment, 2 or 4 weeks, full time	150.00 2 wks 250.00 4 wks 15.00 per hr
	Personal Course in Surgical Pathology on Selective Subjects	By appointment, arranged	
	Six month Clinical Course in Gross and Microscopic Pathology	By appointment, full time	500.00
	Twelve month Course in Gross and Microscopic Pathology	By appointment, full time	500.00
	Twelve month Department Course in Gross and Surgical Pathology	By appointment full time	900.00
	Personal Course in Surgical Pathology, Gross and Microscopic	Oct 4, 10 weeks, part time	100.00
	Personal Course in General Pathology, a Basic Course	Oct 6, 10 weeks, part time	100.00
	Personal Course in Pathology and Laboratory Medicine	Sept 13, 10 weeks, part time	100.00
	Pathology 'C' Neuropathology	Arranged, 6 months, full time	200.00 *
	Pathology 'B'	Arranged, 6 months, full time	150.00
	Pathology	Sept 25-Dec 2, 10 weeks	Not given
	Pathology of Neoplasms	Dec 4-Mar 10, 12 weeks, part time	50.00
	Neuropathology	Dec 4-Mar 10, 12 weeks, part time	50.00
	Surgical Pathology	Sept 11-Dec 2, 12 weeks, part time	50.00
University of Maryland School of Medicine, 20 S Greene St, Baltimore	Gynecological Pathology	Oct 1950, 16 sessions, part time	100.00
University of Michigan Medical School, Ann Arbor, Mich	Surgical Pathology 5F	Oct 1950, 30 sessions, part time	200.00
At University Hospital			
Wayne University College of Medicine, 1512 St Antoine St, Detroit	Pathology PM 30 General and Special Pathology	Sept 30-Jan 6, 3 months, part time	60.00
Essex County Medical Society, 3840 Clinton St, Newark, N J	Pathology PM 1 Surgical Pathology	Arranged throughout the year, full time	50.00 per month
At Seton Hall Campus, South Orange, N J			
Columbia University 630 W 168th St, New York			
At Mt Sinai Hospital			
At Columbia Presbyterian Medical Center			

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PATHOLOGY—Continued			
Joint Committee on Postgraduate Education, 1313 Bedford Ave Brooklyn 16	Gynecological Pathology	Oct 19-50 8 weeks part time	\$30 00
At Beth El Hospital	Pathology	Arranged 16 weeks part time	200 00
New York Medical College Flower and Fifth Ave Hospitals 1 E 106th St New York	Pathology	Three months part time arranged	300 00
	Pathology	Twelve months part time arranged	1 000 00
	Pathology for Surgeons	One month part time arranged	100 00
	Surgical Pathology	Three months part time arranged	300 00
	Urological Pathology	Three months part time arranged	50 00
	Blood Transfusions	Two weeks part time arranged	100 00
	441 A Gynecological Pathology ³⁵	Sept 20-Jan 3 part time	100 00
	442 A Surgical Pathology ³⁵	Sept 19-Dec 23 part time	200 00
	443 A General Pathology	Sept 20-Dec 10 part time	175 00
	445-A Radiation Pathology	Oct 2-Dec 2 part time	100 00
	686-A Pathology for Surgeons	Oct 16-Nov 27 part time	50 00
	687 A Histopathology for Gynecologists	Oct 17-Nov 24 part time	50 00
	Gross and Histopathology	Sept 1950 4½ months full time	75 00
PEDIATRICS			
	Informal Refresher Course in Clinical Pediatrics	Every week 2 or 4 weeks full time	60 00 2 wks 100 00
	Twelve month Department Course in Pediatrics	Sept 1, 12 months full time	4 wks 750 00
	Two week Personal Course in Cerebral Palsy	July 31 2 weeks full time	150 00
	Personal Course in Pediatrics	Sept 27 10 weeks part time	80 00
		Oct 2-23 4 weeks	100 00
Children's Memorial Hospital 707 Fullerton Ave Chicago	Postgraduate Conference in Pediatrics ²⁷	Mid October 1950 2 days	10 00 ²⁸
State University of Iowa College of Medicine Iowa City, Iowa	Refresher Course in Pediatrics	Nov or Dec full time 5 days	None
At University Hospitals			
Louisiana State University School of Medicine 1542 Tulane Ave New Orleans La	Pediatrics 1	Oct 1-May 31 full time	800 00 ^a
Harvard Medical School Courses for Graduates 20 Shattuck St Boston 15	Pediatric Endocrinology	Oct 2-7 full time 1 week	75 00 ^a
At Massachusetts General Hospital	Pediatrics 2	Sept 5-Dec 21 Jan 2-Apr 28, full time	500 00 ^a
At Children's Hospital	Pediatrics	Nov 27-Dec 9 full time	75 00 ^a
Tufts College Medical School Postgraduate Division 30 Bennett St Boston 11	Pediatrics ²⁹	Oct 1950 3½ days full time	20 00 ³⁰
University of Michigan Medical School Ann Arbor Mich	Refresher Course in Pediatrics	Sept 13 6 weeks	200 00
At University Hospital			
Washington University Medical School 4580 Scott St St Louis	Pediatrics PM 30 Clinical Pediatrics	Oct 3-Dec 12 10 weeks part time	80 00
Columbia University 630 W 168th St New York	Pediatrics PM 31 Allergy in Children	Oct 13-Dec 1 7 weeks part time	30 00
At Mt Sinai Hospital			
Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 16 ²	Clinical Pediatrics	Oct 19-50 5 weeks part time	30 00
At Beth El Hospital	Pediatric Allergy	Oct-Mar part time	300 00
New York Medical College, Flower and Fifth Ave Hospitals 1 East 106th St New York	Clinical Pediatrics	Arranged 1 3 6 9 months and 1 year	75 00
New York Polyclinic Medical School and Hospital 345 W 50th St New York	Pediatrics	Arranged 4 weeks part time	75 00
	611 A Clinical Pediatrics	Oct 16-Dec 22 10 weeks part time	120 00
	612 A Clinical Pediatrics	Sept 18-Oct 4 Jan 8-Feb 3 4 weeks full time	150 00
	613 A Practical Clinical Pediatrics	Oct 16-Nov 10 4 weeks, full time	120 00
	614-A Review of Clinical Pediatrics	Nov 20-26 6 days full time	60 00
	615-A Pediatrics Endocrinology	Nov 1-3 full time	75 00
	617 A Allergy for Pediatricians	Oct 2-6 full time	70 00
	618-A Cardiology for Pediatricians	Dec 4-8 full time	70 00
	6110-A Pediatrics	Sept 25-June 16 full time	600 00
	688-A Pediatrics	Sept 12-Nov 3 part time	50 00
	689-A Pediatrics	Sept 19-Dec 12 part time	70 00
	Southern Pediatric Seminar	July 17-20 2 weeks	40 00
	General Pediatrics	Dec 1950 3 days	15 00
	Pediatrics	Oct-May full time	800 00
PHARMACOLOGY			
Wayne University College of Medicine, 1512 St Antoine St Detroit	Survey of Pharmacology	Sept 11-Dec 2 12 weeks part time	15 00
PHYSICAL MEDICINE			
Columbia University 630 W 168th St, New York	Physical Medicine PM 30 Physical Therapy in General Practice	Oct 3-Jan 25 part time	85 00
At Mt Sinai Hospital			
Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 16 ²	Physical Medicine	Oct 19-50, 5 weeks part time	20 00
At Kings County Hospital	Physical Medicine	Arranged 4 weeks part time	100 00
New York Polyclinic Medical School and Hospital 345 W 50th St New York	621 A Physical Medicine and Rehabilitation	Sept 25-June 16 Jan 10-Oct 13 full time	600 00
	622 A Physical Medicine and Rehabilitation	Sept 11 12 or 24 weeks full time	200 00 12 wks 400 00 24 wks
	623-A Physical Medicine and Rehabilitation	Sept 11-Oct 21, Jan 15-Feb 24 full time	100 00
New York University Postgraduate Medical School 477 First Ave, New York 16			

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PHYSIOLOGY			
Cook County Graduate School of Medicine, 427 S Honore St, Chicago 12	Clinical Physiology, a Basic Course	Oct 3, 10 weeks, part time	\$100.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave, Chicago 16	Applications of Physiology, Biochemistry to Medicine	Oct 4-Mar 28, part time	100.00
Columbia University, 630 W 168th St, New York At Mt Sinai Hospital	Physiology PM 30 Physiology of the Digestive Tract	Oct 4 Dec 8, part time	40.00
New York Medical College, Flower and Fifth Ave Hospitals, 1 E 105th St, New York	Physiology of the Cardiovascular System and Blood	Arranged, 1 month	75.00
	Physiology of Respiration	Arranged, 1 month	75.00
	Physiology of the Nervous System	Arranged, 2 weeks	50.00
	Physiology of the Endocrine System	Arranged, 1 month	75.00
	Physiology and Chemistry of the Gastrointestinal Tract and Digestion	Arranged, 1 month	100.00
New York University Postgraduate Medical School, 477 First Ave, New York 16	461 A Basic Science Physiology	Sept 27 June 13, part time	90.00
	545 A Normal and Pathological Physiology, Functional and Chemical Aspect	Jan 8 Feb 21, part time	40.00
	5420-A Normal and Pathological Physiology	Sept 18 20 full time	110.00
Southwestern Medical School, 2211 Oak Lawn Ave, Dallas, Texas	Pathological Physiology	Sept June, part time	10.00
PHYSIOLOGICAL CHEMISTRY			
Wayne University College of Medicine, 1512 St Antoine St, Detroit	Intermediary Metabolism	Dec 4 Mar 10, 12 weeks, part time	15.00
	Physiological Chemistry Seminar	Sept 11 Dec. 2, Dec 4 Mar 10, part time	10.00
	Biological Catalysts	Sept 11 Dec 2, part time	15.00
PLASTIC SURGERY			
University of California, University Extension, Medical Center, San Francisco 22	Amputation Surgery and Prosthetic Devices	Dec 11 14, full time	Not given
POLIOMYELITIS			
National Foundation for Infantile Paralysis, 120 Broadway, New York At Stanford University, San Francisco, Calif At Orthopaedic Hospital, Los Angeles, Calif At University of Colorado, Denver, Colo At Georgia Warm Springs Foundation At The Children's Hospital, Boston, Mass At The D T Watson School of Physiatrics, Leetsdale, Pa University of Minnesota, Center for Continuation Study, Minneapolis 14	Treatment of Poliomyelitis	June 12 14 full time	None
	Poliomyelitis	Oct 9 12, full time	15.00
	Physicians Postgraduate Poliomyelitis Course	Nov 13-18, full time	70.00 ²¹
	Care of Convalescent Poliomyelitis	First week July, Oct and Jan, 5 days, full time	None
	Infantile Paralysis, Acute and Early Convalescent Stages	Aug 7 11	50.00
	Essentials in Care of Acute Polio	Summer, 5 days	10.00
	Poliomyelitis for General Physicians	Nov 9 11, 3 days, full time	20.00
	PROCTOLOGY		
	Proctology	Jan 4 Mar 8, part time	50.00
	Lecture and Cadaver Course in Proctology	Sept 15, 5 weeks, part time	75.00
College of Medical Evangelists, 312 N Boyle Ave, Los Angeles 33	Proctology I	Oct 16-20, full time	40.00 ⁰
Cook County Graduate School of Medicine, 427 S Honore St, Chicago 12	Proctology	Oct 1950, part time, 8 sessions	50.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St, Boston 11	Proctology	Oct 1950, 6 weeks, part time	40.00
Essex County Medical Society 3840 Clinton St, Newark, N J	Clinical Proctology	Arranged, 6 weeks, part time	75.00
At Seton Hall Campus, South Orange, N J	Clinical and Cadaver Proctology	Arranged, 6 weeks, part time	175.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave Brooklyn 16 ²	Clinical Gastroenterology	Arranged, 6 weeks, part time	75.00
At Jewish Hospital	Proctology Gastroenterology	Oct and Jan, part time	200.00
New York Polyclinic Medical School and Hospital, 345 W 50th St, New York	Clinical Proctology and Gastroenterology	Arranged, part time	100.00
PUBLIC HEALTH			
Communicable Disease Center, U S Public Health Service, Atlanta, Ga	Laboratory Diagnosis of Parasitic Diseases	Sept 18-Oct 6, 3 weeks full time	None
	Part 1, Intestinal Parasites	Oct 9-27, 3 weeks, full time	None
	Part 2, Blood Parasites		
	Laboratory Diagnosis of Enteric Diseases	Oct 9 13, 5 days, full time	None
	Part 1, Introductory Enteric Bacteriology	Oct 16-27, full time	None
	Part 2 Advanced Enteric Bacteriology		
	Laboratory Diagnosis of Bacterial Diseases	Sept 11 22, full time	None
	Part 1, General Bacteriology	Sept 25 Oct 6, full time	None
	Part 2, General Bacteriology	Nov 6-10, full time	None
	Serological Diagnosis of Rickettsial Diseases	Nov 13 17, full time	None
	Virus Isolation and Identification Techniques	Nov 13 24, full time	None
	Identification of Medically Important Arthropods	Nov 20-24, full time	None
	Laboratory Diagnosis of Influenza	Nov 27 Dec 1	None
	Laboratory Diagnosis of Rabies		

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PUBLIC HEALTH—Continued			
Communicable Disease Center U S Public Health Service Atlanta Ga	Laboratory Diagnosis of Tuberculosis	Dec 4 to	None
	Laboratory Diagnosis of Virus Diseases	Arranged 2 to 4 weeks	None
	Phage Typing of Salmonella Typhosa	Arranged 1 week	None
	Laboratory Diagnosis of Malaria	Arranged 2 weeks	None
Tulane University of Louisiana, 1430 Tulane Ave New Orleans 12	Tropical Medicine (Public Health)	Begins Sept 20 9 months	\$500 00
Johns Hopkins University School of Hygiene and Public Health, 615 N Wolfe St Baltimore 5	Public Health	Sept 28-May 26 full time	800 00
University of Michigan School of Public Health Ann Arbor Mich	Public Health	Sept 20 Feb 2 24 weeks	Not given
University of North Carolina School of Public Health Chapel Hill, N C	Public Health	Sept June	100 00 per qtr
PULMONARY DISEASES			
College of Medical Evangelists 312 N Boyle Ave Los Angeles 83	Acute and Chronic Thoracic Diseases	Sept 26-Dec 12 part time	50 00
Yale University School of Medicine New Haven Conn	Medicine 209 Diseases of the Chest	Arranged 11 sessions part time	45 00
U S Public Health Service Communicable Disease Center Atlanta Ga	Laboratory Diagnosis of Tuberculosis	Aug 21 Sept 7 Dec 4 15	None
Cook County Graduate School of Medicine 427 S Honore St Chicago 12	Personal Course in the Technique of Physical Examination and Diagnosis of the Chest	Sept 20 8 weeks part time	60 00
American College of Chest Physicians, 500 N Dearborn St, Chicago	Postgraduate Course in Diseases of the Chest	Feb 19-23 1951	50.00
At University of California San Francisco Calif	Postgraduate Course in Diseases of the Chest	Oct 16-20	50 00
At St Clair Hotel Chicago	Postgraduate Course in Diseases of the Chest	Nov 13 17	50.00
At Hotel New Yorker New York	Diseases of the Chest for General Physicians	Oct 26-28 full time	20 00
University of Minnesota Center for Continuation Study, Minneapolis 14	Internal Medicine and Chest Diseases	Year round 6 weeks or 12 months	None
State Sanatorium Sanatorium Miss	A Survey of Chest Diseases	Fall 1950 8 sessions part time	Not given
Albany Medical College Albany N Y	Medicine PM 37 Diseases of the Chest	Oct 17 Dec 12 part time	60 00
Columbia University 630 W 168th St New York	Pulmonary Tuberculosis	Arranged 3 weeks full time	175.00
At Mt Sinai Hospital	548-A Acute and Chronic Diseases of the Chest	Jan 2 Feb 20 part time	50 00
New York Medical College Flower and Fifth Ave Hospitals 20 E 106th St New York	Course in Bronchoesophagology	Sept 20-Oct 6	250 00
At Municipal Sanatorium Otisville N Y			
New York University Postgraduate Medical School 477 First Ave New York 16			
Temple University School of Medicine 3400 N Broad St, Philadelphia 40 Pa			
RADIOLOGY			
Cook County Graduate School of Medicine 427 S Honore St Chicago 12	Clinical and Didactic Course in Diagnostic Roentgenology and Fluoroscopy	First Monday of each month 2 weeks full time	125 00
	Routine Clinical Course in Diagnostic Roentgenology and Fluoroscopy	Third Monday of each month, 2 or 4 weeks full time	125 00 4 wks
	High and Low Voltage X Ray Therapy	First of every week 1 or more weeks	70 00 2 wks 17
	Eight month Course in Diagnostic Roentgenology	By appointment, 8 months full time	500 00
University of Kansas School of Medicine, Kansas City 3 Kan	Twelve month Course in Diagnostic Roentgenology and X Ray Therapy	By appointment full time	750 00
	Clinical Interpretation of X Ray Findings	Sept 21 10 weeks part time	80.00
	Radiology	Jan 8-10 full time	20 00
	General Radiology 1	Throughout the year, 1 month or longer full time	150 00 per month
At University of Kansas Medical Center	General Radiology 2	Throughout the year, 1 month or longer full time	150 00 per month
Harvard Medical School Courses for Graduates, 25 Shattuck St, Boston 15	General Radiology 3	Throughout the year 1 month or longer full time	150 00 per month
At Peter Bent Brigham Hospital	Pediatric Radiology	Throughout the year 1 month or longer full time	150 00 per month
At Massachusetts General Hospital			
At Boston City Hospital			
At Children's Hospital			
Wayne University College of Medicine 1512 St Antoine St Detroit	Medical X Ray Conference	Sept 11 Dec 2 Dec 4-Mar 10 12 weeks part time	15 00
At Receiving Hospital	Roentgenology of the Nervous System for Radiologists and Neurologists	Oct 30-Nov 4 full time	20 00
University of Minnesota, Center for Continuation Study Minneapolis 14	Radiology PM 30 Introduction to Nuclear Physics for Physicians	Oct 10-Jan 23 part time	60.00
Columbia University 630 W 168th St. New York	Radiology PM 50 Roentgenographic Interpretation of the Diseases of Bones and Joints	Nov 15-Feb 14 part time	150 00
At Mt. Sinai Hospital			
At Hospital for Joint Diseases			
Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 16 2	X Ray Diagnosis	Oct 1950 10 weeks part time	20 00
At Jewish Hospital	Clinical Radiology	Oct 1950 10 weeks part time	20 00
At Jewish Sanitarium and Hospital for Chronic Diseases			

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
RADIOLOGY—Continued			
New York Medical College, Flower and Fifth Ave Hospitals, 1 East 105th St., New York	Diagnostic Roentgenology	Every 6 weeks, 6 weeks, except summer months, part time	\$150 00
	Practical Course in Superficial and Deep X Ray Therapy	Arranged, 4 weeks, part time	100 00
	Advanced Course in Radiotherapy	Arranged, 4 weeks, part time	100 00
New York Polyclinic Medical School, 345 W 50th St., New York	Roentgen Interpretation and Technic	Three months, full time, Oct and Jan	300 00
	Advanced Diagnostic Roentgenology and Radiotherapy	Three months, full time, Oct and Jan	300 00
	Diagnostic Roentgenology and Radiation Therapy	Twelve months full time, Oct and Jan	1 000 00
New York University Postgraduate Medical School, 477 First Ave., New York 16	651 A Diagnostic Radiology for General Practitioners	Oct 6 May 18, part time	100 00
	652 A Diagnostic Radiology	Sept 11 Dec 1, part time	100 00
	653 A Radiology Basic Science	Sept 25-June 16 full time	600 00
	655-A Radiophysics	Oct 24 Feb 6, part time	75 00
	656-A Radiology	Arranged Sept 5, 12 months, full time	600 00
University of Oregon Medical School, 3181 S W Sam Jackson Park Rd., Portland 1, Ore	Diagnostic Roentgenology	Oct 23 27, full time	50 00
Oak Ridge Institute of Nuclear Studies, Inc., P O Box 117, Oak Ridge, Tenn	Radiolotope Techniques in Research	July 3, 31 and Jan 2, 1 month	25 00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Radiology	Oct May, full time	800 00
American Roentgen Ray Society, Germantown Hospital, Philadelphia 44			
At Jefferson Hotel, St Louis, Mo	Instruction Course in Radiology	Sept 26-29, full time	25 00 ²²
University of Texas Postgraduate School of Medicine, 2310 Baldwin St., Houston, Texas	Radiological Physics	Once weekly, 5 months	None
At M D Anderson Hospital for Cancer Research			
SURGERY			
College of Medical Evangelists, 312 N Boyle Ave., Los Angeles 33	Traumatic Surgery	Oct 3 Dec 14, part time	50 00
	Intensive 2 week Course in Surgical Technic	July 24 Aug 21 Sept 25, Oct 23 and Nov 27, full time	200 00
	Intensive 4 week Course in Surgical Technic, Surgical Anatomy, Clinical Surgery, Preoperative and Postoperative Management	July 10, Aug 7, Sept 11, Oct 9 and Nov 6, full time	300 00
	Two week Personal Course in General Surgery	Sept 25, 2 weeks, full time	250 00
	One week Personal Course in Surgery of Colon and Rectum	Sept 11, Oct 9 and Nov 27, full time	100 00
	Two week Course in Surgical Anatomy on the Cadaver, Clinical Surgery Preoperative and Postoperative Management	July 24, Aug 21, Sept 25, Oct 23, Nov 20 full time	150 00
	Personal Course in Clinical Surgery	Sept 7, 10 weeks, part time	150 00
	Personal Course in Surgical Diagnosis, Preoperative and Postoperative Management	Sept 20, 10 weeks part time	100 00
	Personal Course in Thoracic Surgery	Sept 13, 10 weeks, part time	100 00
	Personal Course in Esophageal Surgery	Oct 3, 10 weeks, part time	150 00
	One week Personal Course in Thoracic Surgery	Oct 9, 1 week, full time	100 00
	One week Personal Course in Breast and Thyroid Surgery	Oct 2, 1 week, full time	150 00
	One week Personal Course in Esophageal Surgery	Oct 16, full time	150 00
	Ten hour Personal Course in Gallbladder Surgery	Oct 23, 1 week, full time	100 00
	Ten hour Course in Treatment of Varicose Veins	Every Monday, 1 week, full time	40 00
	Ten hour Course in Treatment of Varicose Veins	First and 3d Monday each month, 2 weeks, part time	40 00
	Surgical Anatomy on the Cadaver	Oct 5, 10 weeks, part time	125 00
	Lecture Course in Basic Principles Concerned in General Surgery	Sept 15, 10 weeks, part time	100 00
	Surgical Technic with Practice	Sept 6, 10 weeks, part time	200 00
	Intensive Review Course Considering Basic Principles in General Surgery	Sept 11, 2 weeks, part time	200 00
	Review in Surgery and Traumatology	Jan 15 20, full time	50 00
Cook County Graduate School of Medicine, 427 S Honore St., Chicago 12	Experimental and Clinical Surgery	July 1 June 30, full time	800 00 ⁶
	Endoscopy	Throughout the year, arranged, 3 months full time	375 00 ⁶
	Traumatic Surgery	Nov 2-4, full time	30 00 ⁶
	Surgical Anatomy	Oct 30-Dec 22, part time	200 00 ⁶
	Surgery Seminar	Sept 11 Dec 2, Dec 4 Mar 10, part time	15 00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans 12			
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15			
At Massachusetts General Hospital			
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11			
Wayne University College of Medicine, 1512 St Antoine St., Detroit			
University of Michigan Medical School, Dept of Postgraduate Medicine, Ann Arbor, Mich			
At University Hospital	Clinical Exercises for Practitioners	Oct 18-Dec 20, 10 weeks, part time	25 00
Washington University Medical School, 4580 Scott Ave., St Louis	Management of Surgical Emergencies	Oct 1950, 3 days	25 00
Essex County Medical Society, 8840 Clinton St., Newark, N J	Surgical Technique and Principles of Abdominal Surgery ³⁵	Oct 1950, 20 sessions, part time	200 00
At Newark City Hospital			

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
SURGERY—Continued			
Columbia University 630 W 168th St, New York At Mt Sinai Hospital	Surgery PM 30 Surgery of the Gastrointestinal Tract ³⁵	Oct 9-Nov 3 5 weeks full time	\$150.00
	Combined Surgical Course Including Cadaver Surgery and Gynecology	Oct Jan 3 months full time	300.00
New York Polyclinic Medical School and Hospital 345 W 50th St, New York	Clinical Surgery	Oct Jan 6 weeks full time	100.00
	Clinical and Operative Surgery (Cadaver)	Oct, Jan 6 weeks full time	200.00
	Traumatic Surgery Including General Surgery Orthopedic Surgery and Physical Medicine	Arranged 2 months part time	200.00
New York Medical College Flower and Fifth Ave Hospitals, 1 East 10th St, New York	Surgical Technique	Arranged 50 hours	\$75.00
	Thoracic Surgery	Arranged 3 weeks full time	\$25.00
	661 A Review of General Surgery	Oct 23-Nov 18 full time	300.00
New York University Postgraduate Medical School 477 First Ave New York 16	663 A Recent Advances in Surgery	Sept. 18-29 full time	175.00
	665 A Surgery	Sept 25-June 16 full time	600.00
	6812 A Diagnosis and Treatment of Trauma	Dec 4-9 full time	100.00
University of Buffalo School of Medicine 24 High St Buffalo	Surgical Techniques	Fall 1950, 3 days full time	Not given
University of Oklahoma School of Medicine 800 N E 13th St Oklahoma City	Traumatic Surgery	Sept 24-26 2 days	10.00
University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland 1, Ore	General Surgery	Oct 30-Nov 3 full time	50.00
University of Pennsylvania Graduate School of Medicine Philadelphia 4	General Surgery	Oct May full time	800.00
Dallas Southern Clinical Society Medical Arts Bldg., Dallas 1, Texas At Melrose Hotel	Surgery	Oct 9-11	25.00
THERAPY			
College of Medical Evangelists 312 N Boyle Ave. Los Angeles 33	Physical Therapy	Oct 4-Nov 22, part time	30.00
University of Kansas School of Medicine Kansas City 3 Kan At University of Kansas Medical Center	Therapeutics	Dec 11-13 full time	20.00
Columbia University, 630 W 168th St New York At Mt Sinai Hospital	Medicine PM 44 Recent Advances in Therapy	Oct 18-Dec 6 part time	35.00
New York Medical College Flower and Fifth Ave Hospitals 1 East 10th St, New York	Radium and Roentgen Therapy	Arranged 6 weeks part time	150.00
Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 16 At Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Therapeutics	Oct 1950 6 weeks part time	30.00
TROPICAL MEDICINE			
Tulane University of Louisiana School of Medicine 1430 Tulane Ave New Orleans	Common Infections in Warm Climates	Oct 16-27 2 weeks full time	100.00
New York University Postgraduate Medical School 477 First Ave, New York 16	631 A Tropical Medicine	Oct 2-Nov 29 full time	250.00
UROLOGY			
College of Medical Evangelists 312 N Boyle Ave Los Angeles 33	General Urology	Jan 3-Feb 28, 1951 part time	35.00
Cook County Graduate School of Medicine 427 S Honore St Chicago 12	Genito Urinary Diseases	Nov 13-17 5 days part time	50.00
State University of Iowa College of Medicine Iowa City Iowa At University Hospitals	Two weeks Course in Urology	Sept 20 full time	225.00
	Postgraduate Conference in Urology for General Practitioners	Nov 9 1 day	5.00
American Urological Association Rochester Minn At Louisville Ky	Graduate Course in Urology	Oct 1950 3 days full time	50.00
New York Polyclinic Medical School and Hospital 345 W 50th St New York	Urology	Oct 1 8 months full time	500.00
New York University Postgraduate Medical School 477 First Ave New York 16	672 Urology	Sept 20-June 16 full time	600.00
University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland 1 Oregon	6810-A Urology ³⁵	Oct 9-Nov 18 part time	100.00
University of Pennsylvania Graduate School of Medicine Philadelphia 4	Urology	Nov 20-24 full time	50.00
	Urology	Oct May full time	600.00
VENEREAL DISEASES			
U S Public Health Service Medical Center Hot Springs National Park Ark.	Veneral Disease Postgraduate Course	Oct 23-28 full time	None
Wayne University College of Medicine 1512 St Antoine St Detroit At Social Hygiene Clinic	Conference on Venereal Disease	Sept 11-Dec 2 Dec 4-Mar 10 part time	15.00
Institute for the Study of Venereal Disease, 237 Medical Laboratories Philadelphia At University of Pennsylvania	Essential Basic Training Course	Arranged 6 months	\$90.00

- 1 For Illinois residents \$300.00 nonresidents
- 2 Medical Society of the County of Kings
- 3 \$40.00 nonmembers
- 4 \$20.00 for 600 hour course.
- 5 List of courses revised monthly by American Society of Anesthesiologists
- 6 Registration fee \$3.00.
- 7 Per quarter
- 8 First year \$500.00 second year \$300.00 third year \$200.00 total \$1000.00
- 9 The stated 2 week period may be followed by additional studies at \$100.00 a week. The course may also be taken by Philadelphia area physicians on six consecutive Thursdays—36 hours at \$150.00
- 10 For members nonmembers \$35.00
- 11 For members nonmembers \$60.00.
- 12 Colorado residents \$90.00
- 13 Or \$5.00 each program
- 14 Nonmembers \$25.00 full year for members

- of the Medical Society of the State of Pennsylvania and A. M. A. \$10.00 half year for members M. S. S. P. and A. M. A.
- 15 12 weeks part time \$150.00 16 weeks part time \$200.00 8 weeks full time \$225.00
- 16 Two weeks course beginning any Monday Sept through May
- 17 First year \$600.00 Second year \$400.00 Third year \$200.00
- 18 Four weeks Eight weeks \$175.00 Twelve weeks \$250.00
- 19 Two students \$300.00 Three students \$150.00 Four or more students \$125.00
- 20 Candidates in training
- 21 Advanced candidates in training only
- 22 Per year Course designed to cover 3 academic years
- 23 \$120.00 nonmembers
- 24 Given when 15 requests are received
- 25 For 3 months \$400.00 6 months \$600.00 9 months

- 26 Plus \$10.00 laboratory fee
- 27 In conjunction with Iowa Pediatric Society
- 28 Society members \$5.00
- 29 In conjunction with Michigan Pediatric and Infectious Disease Society
- 30 Society members \$12.50
- 31 Waived if Candidate is sponsored by local chapter of National Foundation for Infantile Paralysis
- 32 No fee for members of society
- 33 In conjunction with Kentucky State Medical Society
- 34 Sponsored by California Medical Association
- 35 For specialists
- 36 One month \$150.00 3 months \$250.00 6 months \$400.00 9 months \$550.00 one year \$700.00
- 37 One week, \$200.00 2 weeks \$300.00 one month \$200.00 2 months \$300.00

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Right of Corporation to Practice Optometry—This was an action to restrain the defendant corporation from engaging in the practice of optometry and to forfeit and revoke its charter. From a judgment granting an injunction the defendant appealed to the Supreme Court of Tennessee.

The evidence submitted to the trial court indicated that the defendant corporation is in the business of making lenses and fitting and selling eye glasses. It is a Tennessee corporation but is a part of a national chain store operation. Prescriptions written in local stores are filled in Chicago, and the glasses sold in Tennessee are made up in Chicago or the factory of the parent corporation and shipped to Nashville, Knoxville and Chattanooga for delivery to the purchaser. The defendant corporation employs, or has an arrangement with, a medical doctor in each of its three stores, by which arrangement each doctor occupies a small space or office inside the store building of the defendant. The doctors' names generally do not appear on the front of the store and are not listed in the telephone directory. These doctors, by arrangement with the defendant, are present during the time the store is open except for perhaps a short lunch period or possibly an afternoon off each week in some cases. The doctors devote their full time, while present at the store, to examining the eyes of customers who are directed to them by the employees of the corporation, and these doctors are guaranteed a fixed minimum weekly income by the corporation. The doctors charge a fixed examination fee of \$2 per customer or patient, and, after they examine the patient's eyes and write the prescription, the patient is ushered back into the sales room of the store, where the manager or an employee of the store proceeds to sell the patient glasses by showing samples of frames. After agreement with the customer on the type of frame and glasses and the price, the order for the glasses is sent to Chicago and shipped from there back to the store for the customer. If in any week the doctor's examination fees from the patients so directed to him by corporate employees fail to amount to the agreed stipulated weekly income, a voucher is sent in and a check from the corporation for the difference is paid him. While in some instances the doctors have an ostensible agreement to pay some small amount as rent for the office space occupied, the record shows that they, in fact, do not pay rent. The determinative question, said the trial court, is whether the doctors are employees of the corporation. If they are, the trial court was of the opinion that the plan or device by which the defendant corporation operated in Tennessee constituted the practice of optometry and was a violation of the optometry act and of statutes regulating the practice of medicine. A careful examination of the entire record, said the trial court, including the advertisements and pictures which have been made exhibits, the depositions of witnesses and the testimony heard in open court, leads to the inescapable conclusion that the plan or device by which the defendant uses the services of the medical doctors in question amounts to an evasion of the law and is not a bona fide arrangement. On the basis of these facts, therefore, the trial court found that no narrow technical definition of the employer-employee relationship should be applied and that, in the sense necessary to make the doctors employees of the corporation, practicing their profession for it and in its name, the undisputed evidence forced the conclusion that the doctors were such employees and that, therefore, the corporation was practicing optometry.

Among other things, the optometry practice act provides "And it shall be unlawful for any person to practice or offer to practice optometry as an employee of any person not engaged primarily in the practice of optometry as a licensee under this

chapter, or of any firm or corporation not engaged primarily in the practice of optometry under the actual and personal supervision of partners or sole stockholders or lessees who possess valid unrevoked certificates of registration as optometrists in and for the state of Tennessee and who have actual legal residences within the state."

It is admitted, said the Supreme Court, that the defendant is not a corporation falling within this definition, so the question of the validity of that portion of the act was not before the court. The defendant's chief argument was that the defendant, as an "optician," and the employed physicians, as "oculists," are expressly exempted from the provisions of the optometry and medical practice acts.

It is not debatable, said the Supreme Court, that, if the physicians were duly registered and licensed, the three doctors acting independently had a right to examine eyes and write prescriptions for eye glasses. It is also clear that the defendant, as a merchant-optician, had a right to sell eye glasses in accord with the prescription. If the evidence supported a conclusion that the profession of the doctors was distinct from and independent of the business of defendant, the state would have no case, but we find that the evidence is to the contrary and shows that the activity of the doctors and the sales of the defendant were so merged and combined that, from the advertisement by which the customer was attracted to the defendant's store until the delivery of the glasses prescribed, the profession of the optometrist and the sale of merchandise by the optician was a single operation and enterprise.

In a Massachusetts case it was said that a customer who desires eye glasses is taken to the physician, who examines the eyes and prescribes eye glasses if needed. Other employees of the defendants assist the customer in selecting the shape and style of frames desired, grind and fit the lenses in accordance with the prescription of the physician and then adjust the finished eye glasses to the eyes of the customer. In the Massachusetts case it was concluded that the physician in such an instance was the servant of the defendant corporation, notwithstanding the fact that the defendants exercised no control over the mode, manner or result of the examination of the eyes of the customer and the doctor was left free to exercise his own will and judgment and use his own professional skill and methods in making such examination.

As found by the trial court, the Supreme Court said, the defendant, though a Tennessee corporation, is a branch of a large chain of optical goods stores operating throughout the United States and Canada. The chief executive authority of this chain is one B. D. Ritholz, who signed and swore to the answer in the present case, and the business operation, including the employment of licensed physicians, as it is presented by the present record, has been reviewed by the highest courts of many other states and by them determined to be unlawful. In these cases, with the single exception of an Iowa case, it has been held that the physicians under contract were servants and employees of the corporation or of Ritholz and that the business operation was therefore unlawful and to be enjoined. A prior Tennessee case is authority to the same effect, so far as the decision goes, the Supreme Court further pointed out. On the issues presented in the case, it was only necessary to decide that the employed doctor was an employee within the purview of the unemployment compensation act. This court held that he was such employee for the purpose of the act but that limited holding clearly eliminates the proposition urged by the defendant that the doctor was, or the present doctors are, independent contractors. In the great majority of cases it has been decided that an operation like that of the defendant is unlawful and may be enjoined. In the Iowa case the decision was based on the fact that the practice of optometry is not the practice of a profession. In an early Tennessee case it was similarly held, but in 1947 an amendment to the Tennessee statutes made optometry one of the "healing arts." We cannot escape the conclusion, said the Supreme Court, that it was the purpose of the legislature to make the practice of optometry a profession

and so to overrule the contrary holding of the Supreme Court in the prior case. The rule is uniform, the Supreme Court concluded, that a corporation cannot practice one of the learned professions, obviously this implies that the corporation cannot employ a licensed practitioner, since a corporation acts only through agents who practice for it.

On the basis of all of the evidence, therefore, the judgment of the trial court granting an injunction against the defendant corporation was accordingly affirmed—*State ex rel Loser Attorney General, v National Optical Stores Co., 225 S W (2d) 263 (Tenn., 1949)*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Various locations June 19 21 *Part III* Twenty nine centers June 6-29 Registration closes on May 6 Exec Sec. Mr E S Elwood 225 S 15th Street, Philadelphia

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written* Various locations, July 21 *Oral* Chicago Oct. 8 11 Sec. Dr Curtiss B Hickcox 745 Fifth Ave. New York 22

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written* Various locations Sept. 14 *Oral* Detroit Oct. 20 22 Sec. Dr George M Lewis 66 East 66th St New York 21

AMERICAN BOARD OF INTERNAL MEDICINE *Oral* San Francisco June 21 23 The oral examinations in the subspecialties will be held at the same time and places. *Written* Oct 16 Asst. Sec Dr William A. Werrell 1 West Main Street, Madison 3 Wis

AMERICAN BOARD OF NEUROLOGICAL SURGERY Chicago Oct 1950 Applications no longer accepted Sec. Dr W J German 789 Howard Ave. New Haven Conn

AMERICAN BOARD OF OPHTHALMOLOGY *Written* Various Centers January 1951 Final date for filing applications is July 1, 1950 Chicago Oct 2 6 West Coast, Jan 1951 Sec. Dr Edwin B Dunphy 56 Ivie Road, Cape Cottage Maine

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Part II* Chicago Jan. 25 26 Final date for filing applications is Aug 15 1950 Sec Dr Harold A. Sohfeld 122 South Michigan Avenue Chicago 3

AMERICAN BOARD OF OPHTHALMOLOGY Chicago October Sec. Dr Dean M Lierle, University Hospital Iowa City

AMERICAN BOARD OF PATHOLOGY St. Louis Oct 13 14 Sec. Dr Robert R. Moore 507 Euclid Ave St. Louis 10

AMERICAN BOARD OF PEDIATRICS *Written* San Francisco June 30-July 2 *Oral* Chicago Oct. 13 15 and Boston Dec. 13 Exec Sec. Dr John McK Mitchell 6 Cushman Road Rosemont Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION *Oral and Written* Boston Aug 26-27 Final date for filing applications is April 1 Sec. Dr Robert L. Bennett 30 N Michigan Ave. Chicago.

AMERICAN BOARD OF PLASTIC SURGERY *Oral* May June. Sec. Dr Louis T Byars 4647 Pershing Avenue St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY San Francisco June 23 24 Applications no longer accepted. Next examination December 1950 Final date for filing applications is Sept. 1

AMERICAN BOARD OF RADIOLOGY *Oral* Chicago week of June 18 Sec. Dr B R Kirklin 102 110 Second Ave S W Rochester Minn

AMERICAN BOARD OF SURGERY *Written* Various centers Oct. 25 Final date for filing applications is July 1 Sec., Dr J Stewart Rodman, 225 South 15th Street, Philadelphia

AMERICAN BOARD OF UROLOGY Chicago, Feb 10-14 1951 Final date for filing applications is Sept. 1 1950 Sec. Dr Harry Culver 7935 Sunnyside Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

ALABAMA Examination Montgomery June 27 29 Sec. Dr D G Gill 519 Dexter Avenue Montgomery

ALASKA * Juneau Sept. 5 Special examinations given on application. Sec Dr W M Whitehead Box 140 Juneau

CALIFORNIA Examination *Written* San Francisco June 19 22 Los Angeles Aug 21 24 Sacramento Oct. 16 19 Examination *Oral and Clinical for Foreign Medical School Graduates* San Francisco June 18, Los Angeles, Aug. 20 San Francisco Nov 12 *Reciprocity* *Oral Examination* San Francisco June 17 Los Angeles Aug 19 San Francisco Nov 11 Sec. Dr Frederick N Scatena 1020 N Street, Sacramento 14

CONNECTICUT * Examination Hartford July 11 12 Sec. to the Board Dr Creighton Barker 160 St. Roman St. New Haven *Homeopathic* Derby July 11 12, Sec., Dr Donald A. Davis, 38 Elizabeth St. Derby

DELAWARE Examination Dover July 11 13 *Reciprocity* Dover July 20 Sec. Dr J S McDaniel 229 S State St. Dover

FLORIDA * Jacksonville June 25 27 Sec. Dr Frank D Gray 12 N Rosalind Avenue, Orlando.

GEORGIA Examination. Atlanta and Augusta June. *Endorsement*. Atlanta June. Sec. Mr R. C. Coleman 111 State Capitol, Atlanta 3

HAWAII Examination Honolulu. July 10-13 Sec. Dr I. L. Tilden, 1020 Kapiolani St Honolulu.

IDaho Boise July 10 Sec. Mr Armand L. Bird 305 Sun Bldg., Boise.

ILLINOIS Chicago June 13 15 Superintendent of Registration Mr Charles F Kervin Capitol Building Springfield.

INDIANA Examination Indianapolis, June. Sec. Dr Paul R. Tindall, 1138 K of P Bldg Indianapolis.

IOWA * Examination Iowa City June 12 14 Sec. Dr M A. Royal 506 Fleming Building Des Moines 19

KENTUCKY Examination Louisville June 14-16 Sec. Dr Bruce Underwood 620 S 3rd Street, Louisville 2.

MAINE Examination and Reciprocity Augusta, July 11 12. Sec. Dr Adam P. Leighton 192 State St Portland

MARYLAND Examination Baltimore June 20-23 Sec. Dr Lewis P Gundry 1215 Cathedral Street, Baltimore 1 *Homeopathic* Baltimore, June 20 21 Sec. Dr John A Evans 612 W 40th St Baltimore.

MASSACHUSETTS Examination. Boston July 11 14 Sec. Dr George L. Schadt, Room 37 State House Boston 33

MICHIGAN * Examination Ann Arbor and Detroit, June 12 14 Sec. Dr J Earl McIntyre 100 W Allegan St. Lansing 8

MINNESOTA * *Written Special Examination* Minneapolis June 13 15 *Regular Examination* Minneapolis June 20-22 Sec. Dr J F Du Bois, 230 Lowry Medical Arts Building St Paul 2

MISSISSIPPI Jackson, June 20 21 Asst. Sec Dr R N Whitfield Jackson 113

NEVADA *Endorsement* Carson City August 7 Sec. Dr George H. Ross 112 Curry Street Carson City

NEW HAMPSHIRE Concord Sept. 13 Sec. Dr John Samuel Wheeler 107 State House, Concord.

NEW JERSEY Examination Trenton June 20-23 Sec., Dr E. S Hallinger 28 West State Street, Trenton

NEW MEXICO * Santa Fe Oct. 9 10 Sec. Dr Charles J McGoeys Coronado Building Santa Fe

NEW YORK Examination Albany Buffalo New York and Syracuse, June 27 30 Sec. Dr Jacob L. Lochner Jr 23 S Pearl St Albany

NORTH CAROLINA *Written* Raleigh June 19 22 *Endorsement* Raleigh June 19 Sec Dr Ivan Procter 226 Hillsboro Street, Raleigh.

NORTH DAKOTA Examination Grand Forks July 5 7 *Reciprocity* Grand Forks July 8 Sec Dr C. J Glaspel Grafton

OHIO Examination Columbus June 14 17 Sec. Dr H M Platter 21 W Broad St. Columbus 15

OREGON * Portland, July 6 8 Sec. Mr Howard I Bobbitt, 609 Failing Building Portland

PENNSYLVANIA Examination. Philadelphia and Pittsburgh July 11 14 Acl. Sec Mrs Marguerite G Steiner 351 Education Bldg Harrisburg

PUERTO RICO Examination Santurce Sept. 5 Sec. Mr Luis Cueto Coll Box 3717 Santurce.

RHODE ISLAND * Examination Providence July 6 7 Sec Mr Thomas B Casey 366 State Office Building Providence.

SOUTH CAROLINA Examination Columbia June 26 29 *Reciprocity* First Monday of each month Sec. Dr N B Heyward 1329 Blanding Street Columbia.

SOUTH DAKOTA * Sioux Falls July 18-19 Sec. Dr C E. Sherwood, 300 First National Bank Bldg Sioux Falls.

TEXAS * Examination Austin June 19 21 Sec. Dr M H. Crabb 1714 Medical Arts Bldg Fort Worth 2

UTAH Examination Salt Lake City June. Dir., Dr Frank E. Lee, 324 State Capitol Building Salt Lake City

VERMONT Examination Burlington June 13 15 Sec, Dr F J Lawliss Richford.

VIRGINIA Examination, Richmond June 23 24 *Endorsement* Richmond June 22 Sec. Dr K. D Graves 631 First St. S W Roanoke.

WEST VIRGINIA Examination Charleston July 10 12 Sec Dr N H Dyer Capitol Bldg Charleston

WISCONSIN * Milwaukee July 11 13 Sec. Dr C. A. Dawson, River Falls

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COLORADO Examination Denver Sept. 13 14 Sec. Dr Esther B Starks 1459 Ogden St. Denver 3

CONNECTICUT Examination New Haven, June 10 Exec. Asst. State Board of Healing Arts M. G Reynolds 110 Whitney Ave., New Haven.

IOWA Examination Des Moines July 11 Sec. Dr Ben H Peterson Coe College Cedar Rapids

MICHIGAN Examination Ann Arbor Oct. 13 14 Sec Miss Eloise LeBeau 101 North Walnut Street Lansing 15

NEBRASKA Examination Omaha Oct 3-4 Director Mr Oscar F Humble Room 1009 State Capitol Building Lincoln 9

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RHODE ISLAND Examination Providence August 9 Chief Division of Professional Regulation Mr Thomas B Casey 366 State Office Building Providence.

TEXAS Examination Austin October Sec. Brother Raphael Wilson 306 Nalle Building Austin

Current Medical Literature

AMERICAN

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Alabama State Medical Assn Journal, Montgomery 19 189-224 (Jan) 1950

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*Hormone Therapy in Cataract J A Keyton—p 198

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A Tull Stomach W F Englebert—p 230

Use of Electroencephalography in Clinical Medicine S C Little—p 231

Problems and Pleasures Connected with Psychiatric Section of General Hospital F A Kay—p 237

Privine Addiction W H Blank—p 240

Hormone Therapy in Cataract—Keyton noticed that cataract was most prevalent in the fifth decade of life. Even though definite cataractous changes are not grossly apparent studies with the slit lamp and careful refraction will reveal changes which may have escaped detection in casual examination. Because of the changes taking place in endocrine organs during this time of life, the author administered male sex hormone preparations to patients with cataract. Before the patients were subjected to this therapy, it was established that they had passed the climacteric, for it would be futile to introduce into the system a therapeutic agent which already abounded there. Prostatic and pelvic examinations for malignant changes were made. The drug was not administered when prostatic nodules or polychromatic cells, sometimes found in the excretions of potentially malignant prostates, were present or when there were changes of a malignant nature in the cervix or other portions of the uterine anatomy. The author administers testosterone in 10 mg doses daily for three months, sublingually, orally or parenterally, and then checks the lens with the lamp and checks refraction. If there is no improvement, the dose is increased to 15 or 20 mg daily for another three months, when the same examinations are repeated. The author continues the treatment for nine months before abandoning it as hopeless. He admits that this treatment is not a panacea for all cataracts—many cataracts clear without treatment—but he believes that this drug has materially aided some patients.

American Journal of Medicine, New York

8 1-136 (Jan) 1950

*Treatment of Primary Atypical Pneumonia with Aureomycin H S Collins, E B Wells, T M Gocke and M Finland—p 4

*Aureomycin in Treatment of Influenza and Certain Other Acute Respiratory Infections With or Without Pneumonia. M Finland, E B Wells, H S Collins and T M Gocke—p 21

Aureomycin in Treatment of Anthrax H Gold—p 31

Acute Serofibrinous Pericarditis of Undetermined Cause Study of 27 Cases R L Levy and M C Patterson—p 34

Intrapulmonary Pleural Effusion Simulating Elevation of Diaphragm E Rothstein and F B Landis—p 46

Prognosis in Arterial Hypertension Comparison Between 251 Patients After Sympathectomy and Selected Series of 435 Non Operated Patients S Hammarström and P Bechgaard—p 53

Study of Coagulation Mechanism of Pleural Blood in Hemopneumothorax S W Cosgriff—p 57

Aureomycin in Primary Atypical Pneumonia—Collins and associates report on the effectiveness of aureomycin in various types of pneumonia and other severe infections of the respiratory tract. The first group studied included 32 patients with symptoms, physical signs, roentgenographic shadows in

the lungs and the common laboratory observations that are generally considered to be characteristic of "viral" or primary atypical pneumonia. The observations in the 8 patients of group 2 were comparable in every respect to those in group 1 except that cold agglutinins could not be demonstrated in the serums of the former. Group 3 comprised 9 patients with acute pulmonary infections in whose serums cold agglutinins were demonstrated in significant titers, but the diagnosis of primary atypical pneumonia was discarded. These 9 patients form a heterogeneous group. All except 2 were given all the aureomycin orally. Treatment was usually begun with doses of 1 Gm every four to six hours. Later, after the acute symptoms subsided, either the dose was reduced or the interval increased. The total dose varied between 3 and 44 Gm and was given over a period ranging from one to thirteen days. Most of the patients received less than 15 Gm within a period of less than four days. Aureomycin had a beneficial effect on the fever and symptoms in each of 40 patients with the characteristic signs of so-called viral or primary atypical pneumonia. In the 9 patients of the heterogeneous group, in whom the pulmonary findings were accounted for on the basis of diseases other than primary atypical pneumonia, the response to aureomycin was variable.

Aureomycin in Influenza and Other Respiratory Infections—Finland and his associates deal with a miscellaneous group of 41 cases of severe, acute respiratory infections with or without pneumonia. In 18 patients with proved influenza A infection, with bronchopulmonary involvement in most instances, oral administration of aureomycin was followed by prompt defervescence and alleviation of symptoms and the pulmonary lesions cleared rapidly. Pathogenic bacteria of possible significance were isolated from the throat or sputum in few patients in whom pulmonary lesions could not be demonstrated roentgenographically. Similar rapid improvement occurred during aureomycin therapy in 10 patients with severe, acute respiratory infections without pneumonia. Three of these 10 patients had nasopharyngitis and exudative tonsillitis associated with beta hemolytic streptococci, but no etiologic agent was identified in the others by bacteriologic or serologic methods. In 5 patients with classic signs and symptoms of lobar pneumonia, but in whom bacteriologic studies failed to reveal the etiologic agent, aureomycin therapy was likewise accompanied with a rapid termination of the acute disease. Each of the remaining 8 patients had pneumonia as a complication of other serious conditions, and no microbial agent could be identified as the cause of the pneumonia. The results of aureomycin therapy in these cases were equivocal. In view of the failure to demonstrate any definite action of aureomycin against experimental infections with influenza virus, the authors assume that possibly it exerts its effects through its action on secondary bacterial invaders.

Am J Roentgenol & Rad Therapy, Springfield, Ill

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Biologic Effects of Long Continued Irradiation E Lorenz—p 176

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Pulmonary Complications of Insulin Shock Therapy R J Gross and F H Schaefer—p 191

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Calcification in Retroperitoneal Neuroblastoma Report of 3 Cases with Tuberculous Reaction in 1 Case P A Cline, G N Scatchard, E G Eschner and F J Gustina—p 246

Roentgen Therapy Alone in Treatment of Advanced Cervico-Uterine Cancer, Including Extensive Postoperative Recurrences F Bacless—p 252

American Journal of Tropical Medicine, Baltimore
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- Indirect In Vitro Action of Antibiotics in Comparison with Activity of Accepted Amebicides J L Bradin Jr and E L Hansen—p 27
- Stain for Rapid Differentiation of Trophozoites of Intestinal Amoebae in Fresh Wet Preparations C. A. Velat P P Weinstein and G F Otto—p 43
- Survival of Cysts of *Endamoeba Histolytica* in Water at Temperatures Between 45 C and 55 C M F Jones and W L Newton—p 53
- In Vitro Method of Testing Amebicidal Activity of New Chemical Agent Using Balamuth Medium B Anastopoulos and C L Birch—p 59
- Camoquin Treatment of Malaria Preliminary Report. M T Hoekenga—p 63
- Attempts to Transmit Human *Balantidium Coli* M D Young—p 71
- *Relapsing Fever in Texas Distribution of Laboratory Confirmed Cases and Arthropod Reservoirs R B Eads H E Henderson T McGregor and J V Irons—p 73
- Public Health Laboratory Diagnosis of Enteric Infections M. M Galton A V Hardy and R B Mitchell—p 77
- Note on Treatment of Strongyloidiasis with Intravenous Gentian Violet. E. D Palmer—p 91
- Enterobiasis Among Patients in Roanoke Veterans Adm Hospital C. H Heilmann—p 93
- Field Studies of Tick Repellents C N Smith and W V King—p 97

Relapsing Fever in Texas—Eads and his associates point out that the spirochete infection characterized by alternating febrile and afebrile periods commonly known as "relapsing fever" has been demonstrated to be endemic in Texas by a number of investigators. From June 1942 to May 1949 the diagnoses in 100 cases of relapsing fever were confirmed by personnel of the Bureau of Laboratories, Texas State Department of Health, by the demonstration in thick blood films of spirochetes morphologically indistinguishable from the causative agent of American relapsing fever. The cases occurred chiefly in the central part of the state, with scattered cases in all but the eastern part of Texas. During the same period of time, specimens of *Ornithodoros turicata* have been taken in 44 counties, representing all sections of the state except East Texas. In all but eight of the counties, pools of the ticks were shown to contain some harboring spirochetes.

American Review of Tuberculosis, New York**61 1-158 (Jan) 1950**

- Chemical Studies on Thiosemicarbazones with Particular Reference to Antituberculous Activity R. Behnisch F Mietzsch and H Schmidt—p 1
- Investigations on Antituberculous Activity of Thiosemicarbazones in Vitro and in Vivo G Domagk—p 8
- Present Status of Chemotherapy of Tuberculosis with Conteben Substance of Thiosemicarbazone Series Review A Mertens and R. Bunge—p 20
- Implications of Changing Morbidity and Mortality Rates from Tuberculosis H R Edwards and G J Drolet—p 39
- Prevalence of Clinically Significant Pulmonary Tuberculosis Among Inmates of New York State Penal Institutions J Katz and R. E Plunkett—p 51
- Postoperative Management of Thoracoplasty Patients J Alexander—p 57
- *Value of Cytological Diagnosis of Pulmonary Malignancy L. H Clerf and P A. Herbut—p 60
- Properties of Culture of BCG Grown in Liquid Media Containing Tween 80 and Filtrate of Heated Serum R J Dubos F Fenner and C H Pierce—p 66
- Experimental Tuberculosis in the Dog Comparison of Lesions in Puppies and Mature Dogs F D Gunn and J J Sheehy—p 77
- Studies on Contagiousness of *Coccidioidomycosis* II Fate of Spherules in Sputum Exposed out of Doors S R Rosenthal and F H Elmore—p 95
- Id III Infection in Guinea Pigs by Contact with Diseased Animals S R Rosenthal and F H Elmore—p 106
- Tuberculosis of Stomach and the Stomach in Tuberculosis Review with Particular Reference to Gross Pathology and Gastroscopic Diagnosis E. D Palmer—p 116

Cytological Diagnosis of Pulmonary Malignancy—In applying the Papanicolaou technic to sputum Clerf and Herbut found that the number of positive diagnoses was insufficient, and since virtually all cases of suspected carcinoma were examined bronchoscopically, they utilize bronchoscopically removed secretions. The tracheal secretions usually were discarded because they represented greater dilution, and those obtained from the suspected bronchial subdivision were utilized. Because of their scantiness a special bronchoscopic collector was devised. Three to five cubic centimeters of isotonic sodium chloride solution are instilled bronchoscopically into the sus-

pected subdivision. After several minutes the washings are aspirated into the collector. Whenever possible, the patient is postured so that the solution is instilled into a dependent portion of the lung. Statistical data as of February 1949 include a total of 285 cases of bronchogenic carcinoma. Of this group 253 (88.8 per cent) were diagnosed by cytologic examination of bronchoscopically removed secretions. In 99 cases (34.7 per cent) positive bronchoscopic biopsies were obtained, and in 78 there was bronchoscopic evidence of deformity, fixation, rigidity or stenosis suggesting new growth. If this latter group is included with the cases of positive bronchoscopic biopsy, the total number of bronchoscopic diagnoses would be 177 (62.1 per cent). The authors stress that the cytologic examination of bronchoscopically removed secretions offers a means of recognizing early and peripherally situated bronchogenic carcinoma which cannot be visualized bronchoscopically or diagnosed accurately by any means short actual biopsy of the tumor itself at exploratory thoracotomy. With earlier discovery of suspicious pulmonary lesions by mass roentgenographic surveys and by cytologic study of bronchial secretions, the results of surgical treatment of bronchogenic carcinoma should improve considerably.

Annals of Surgery, Philadelphia**131 1-128 (Jan) 1950**

- *Use of Blood and Plasma in Correction of Protein Deficiencies in Surgical Patients J G Allen W Egner, M B Brandt and D B Phemister—p 1
- Streptococcal Enzymatic Debridement. W S Tillett, S Sherry, L R Christensen and others—p 12
- Postural Changes in Circulation of Surgical Patients as Studied by New Method for Recording Arterial Blood Pressure and Pressure Pulse L. H Peterson K. F Eather and R D Dripps—p 23
- Effects of Hemoconcentration of Ulcer Diathesis with Special Reference to Employment of Gastrectomy in Surgical Treatment of Polycythemia Vera. I D Baronofsky, D State S R Friesen and others—p 31
- Splanchnic Nerve Section for Pancreatic Pain Second Report. G de Takats L E Walter and J Lasner—p 44
- Bilateral Splanchnicectomy and Lumbodorsal Sympathectomy for Chronic Relapsing Pancreatitis J E Connolly and V Richards—p 58
- Reconstructive Surgery Following Radical Operation for Malignant Tumors of Head and Neck H Conway—p 64
- Burns from Electricity G K. Lewis—p 80
- Ligation of Splenic Artery Operation of Choice in Selected Cases of Portal Hypertension and Banti's Syndrome A W Blain and A Blain III—p 92
- Blood Supply of Rectosigmoid and Rectum M W Breenberg—p 100
- Neurologic Deficit Associated with Lipomas of Cauda Equina. R C Bassett—p 109
- Extrinsic Duodenal Obstruction in Newborn A E Sachs—p 117
- Meningocele Spinalis Traumatica Spura Case Report of Unusual Complication of Spinal Injury with Operative Cure A L Shapiro and L Paske—p 124

Blood and Plasma in Correction of Protein Deficiencies—Allen and his co-workers studied the nitrogen metabolism in depleted patients to whom protein was administered in the form of plasma or blood. Intravenously administered plasma appeared to be utilized more efficiently than intravenously administered amigen® (protein hydrolysate) both with respect to nitrogen balance and elevation of the plasma proteins. No latent nitrogen loss was detected. Evidence suggests that intracellular hemoglobin in whole blood transfusions may be utilized for body protein in the depleted patient. The rises in hemoglobin and hematocrit readings were slow, and the values obtained were considerably less than should be expected had all the hemoglobin contained in the transfusions been retained in the circulation. These data suggest that the body's utilization of hemoglobin for tissue protein may explain why the response to whole blood transfusions is often slow. Untoward reactions to either blood or plasma transfusions were not sufficiently frequent or severe to discourage such therapy as a means of correcting hypoproteinemic states. The problem of "homologous serum jaundice" can be minimized by rejection of donors with a history of jaundice. The authors believe that this problem is not sufficient reason for rejection of plasma transfusions for nutritive purposes. Circulatory overload may occur, but the danger of moderate overtransfusion is probably much less than the hazards of undertransfusion. The much more efficient utilization of blood and plasma as nitrogenous nutrients, compared with protein hydrolysates, justifies the cost differential.

Arch. Indust Hygiene and Occupat. Medicine, Chicago

1 133-270 (Feb) 1950

- Impairment of Pulmonary Function in Anthracosis H L Motley, B Gordon, L P Lang and P A Theodos —p 133
- Health Service for Hospital Personnel. J G Norby —p 160
- Cataract from Infra Red Rays (Glass Workers' Cataract) Preliminary Study on Exposures K L Dunn —p 166
- Extending Potential of Industrial Health W H Seymour —p 181
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- Chronic Pulmonary Berylliosis in Workers Using Fluorescent Powders Containing Beryllium H E MacMahon and H G Olken —p 195
- Distribution and Excretion of Intravenously Administered Methyl Chloride F Sperling, F J Macri and W F von Oettingen —p 215
- Vapor Toxicity of 1,1,1 Trichloroethane (Methylchloroform) Determined by Experiments on Laboratory Animals E M Adams H C Spencer, V K Rowe and D D Irish —p 225
- Effects of Prolonged Inhalation of Oil Fogs on Experimental Animals C C Lushbaugh, J W Green Jr and C E Redemann —p 237
- Toxic Gases and Aviation Gaseous Concentrations and Altitude C R. Spealman —p 248

Archives of Internal Medicine, Chicago

85 199-364 (Feb) 1950

- *Observations on Physiologic Effects of Cortisone and ACTH in Man R G Sprague, M H Power, H L Mason and others —p 199
- *Bacterial Meningitis Results of Treatment in 17 Cases with New Sulfonamide (Gantrisin®) P S Rhoads, F A Svec and J H Rohr —p 259
- Multiple Symmetric Bilateral Cranial Nerve Palsies in Patients with Unregulated Diabetes Mellitus Report of 3 Cases D L Larson and J H Auchincloss —p 265
- Relation Between Blood Lipids and Excretion of Choline in Diabetic Patients O V Sirek —p 272
- Chloramphenicol in Treatment of Eberthella Typhosa G Osteomyelitis Report of Case C W Morse and F M Geiser —p 280
- Chemical Structure of Substances Effective in Treatment of Parkinsonism D S Gair and J Ducey —p 284
- Kidney in Relation to Protein Catabolism Effect of Abstinence from Food and Fluid After Sudden Loss of Renal Tissue E C Persike —p 299
- Syphilis Review of Recent Literature H Beerman, L Nicholas, M S Buerk and W T Ford —p 305

Physiologic Effects of Cortisone and ACTH—Sprague and his associates of the Mayo Clinic report on clinical and metabolic studies on 33 patients who received cortisone or ACTH or both for varying periods. One of the patients also received compound F. Cortisone and ACTH had many effects in common. They are powerful hormonal agents. Many of the manifestations of Cushing's syndrome were induced by protracted administration of cortisone, these included rounding of the face, hirsutism, acne, keratosis pilaris, muscular weakness, edema, amenorrhea, cutaneous striae, mental depression, impairment of carbohydrate tolerance, negative nitrogen balance, increased excretion of corticosteroids in the urine and hypochloremic, hypopotassemic alkalosis. Metabolic studies disclosed that cortisone and ACTH increased excretion of creatine and uric acid in the urine and gave rise to a negative balance for potassium in some cases. Their effects on balances of sodium and chloride were variable, the usual pattern being retention of salt early in the period of administration, followed by increased excretion when administration was prolonged. In some cases there were slight increases in urinary excretion of calcium and phosphorus. Compound F did not have pronounced metabolic effects. Studies of the urinary steroids revealed that the adrenal cortex, when stimulated by ACTH secretes 17-hydroxy-corticosterone (compound F) rather than cortisone. A small percentage of administered cortisone is excreted in the urine as 17-ketosteroids and corticosteroids. Small amounts of unchanged cortisone were present in the corticosteroid fraction. Cortisone is capable of depressing the function of the adrenal cortex in man. The authors suggest that such terms as "side effects" or "toxic reactions" should not be applied to physiologic alterations induced by cortisone and ACTH, for they do not indicate the biologic significance of these important substances.

Gantrisin® in Bacterial Meningitis—Rhoads and his co-workers had reported in a previous communication clinical experiences with a new sulfonamide, gantrisin® (3,4-dimethyl-5-sulfanilamido-isoaxazole). It had been used as the sole bacteriostatic agent in 53 patients with various infections and in combination with antibiotics in 38 others. The results were satisfactory, but since many of the conditions for which it had been

prescribed are self limiting, the authors felt that special attention should be given to the results obtained in bacterial meningitis—a disease which in a large percentage of the cases does not clear up spontaneously. Ten patients with meningococcal meningitis were treated with gantrisin® as the sole bacteriostatic agent. All recovered without complications due to the disease or the treatment. Two patients with meningococcal meningitis were given combined treatment with gantrisin® and penicillin. Both recovered without complications. Three patients with pneumococcal meningitis were treated with gantrisin® and penicillin. One of these, shown by autopsy to have had pneumococcal endocarditis, died. The others recovered. Both patients with hemophilus influenzae meningitis who were treated with gantrisin® and streptomycin, made an uneventful recovery. Gantrisin® was administered orally, intramuscularly and intravenously with no untoward effects. Several patients who had albuminuria and microscopic hematuria at the start of treatment with gantrisin® were successfully treated with the drug in full doses without adjuvant alkali therapy.

Archives of Surgery, Chicago

60 203-420 (Feb) 1950

- *Study of Vagotomy J M Beal and P Dineen —p 203
- Failure of Vagotomy to Prevent Formation of Mann-Williamson Ulcer in Dogs D M Enerson, E R Woodward, E B Tovee and others —p 223
- Treatment of Chronic Pancreatitis by Unilateral Splanchicectomy P Mallet Guy and M Jaubert de Beaujeu —p 233
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- Malignant Tumors of Parathyroid Glands Review of Literature with Report of Case H U Stephenson Jr —p 247
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- Clamp for Construction of Vascular Anastomoses H W Southwick —p 372
- Full Thickness Pedicle Flap Graft from Amputated Arm for Large Skin Defects Following Interscapulothoracic Amputation K A Merendino —p 376
- Review of Urologic Surgery A J Scholl, F Hinman, E Crowley and others —p 379

Vagotomy—From May 1946 to January 1949 Beal and Dineen performed vagotomy on 58 men and 9 women with peptic ulcers. Forty-four of the patients had duodenal ulcers, 23 had marginal ulcers, 1 had a gastric ulcer and 1 an esophageal ulcer. A transthoracic approach was made in 20 patients and subdiaphragmatic in 49. Gastroenterostomy was combined with vagotomy in 12 and gastric resection in 7. Insulin gastric analyses after operation demonstrated a complete vagotomy in 44 patients. The patients were followed for one to twenty-eight months, 49 were followed for more than six months. Fourteen of the 20 patients on whom transthoracic vagotomy was performed were free of pain and were considered to have satisfactory results, treatment in 6 failed. Transabdominal vagotomy resulted satisfactorily in 42 and failed in 6 patients. Hemorrhage did not recur in the 14 instances in which operation was performed on patients who had a recent episode of gastrointestinal bleeding. Two patients died, one on the ninth postoperative day from pulmonary embolism and the other from a cerebral vascular accident three months after the operation. Undesirable side effects occurred in 33 patients, 28 had signs and symptoms of gastric retention for four to six months, and 17 had transient diarrhea for three to four months. To alleviate these disturbances, carbachol was administered to 6 patients and urecholine® (urethane derivative of beta-methylcholine chloride) to 2. These drugs were equally effective in relieving symptoms due to disturbed gastric motility and to diarrhea. When vagotomy is complete, the cephalic

phage of gastric secretion is abolished and the excessive night secretion of high acid content is eliminated. Complete vagotomy may be anticipated in 80 to 90 per cent of cases according to clinical and anatomic studies. Objection to the operation is based on uncertainty of complete division of all fibers and on the undesirable side effects in a high percentage of cases. The permanency of benefits from vagus section is not yet established. The results obtained with vagotomy in the treatment of duodenal ulcer are inferior to those from gastric resection. Simple vagotomy is contraindicated in cases of obstructing duodenal ulcer and of gastric ulcer. Vagotomy seems best suited for marginal ulcer.

Bulletin New York Academy of Medicine, New York 26 1-72 (Jan) 1950

Advances in Diagnosis of Virus Infections F L Horsfall Jr—p 3
Unipolar Electrocardiography Including Intracardiac Leads in Diagnosis of Myocardial Disease. C E Kossmann—p 20
Renal Function Tests in Diagnosis of Glomerular and Tubular Disease D P Earle Jr—p 47
Therapeutic Results with Aureomycin and Chloramphenicol T E Woodward R T Parker and H E Hall—p 66

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Canadian Medical Association Journal, Montreal

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Recent Advances in Obstetrics of Interest to General Practitioner H B VanWyck—p 109
Artificial Radioactivity J W T Spinks—p 120
Psychogenic Aspect of Dermatologic Therapy D E H Cleveland—p 122
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Provisions for Prevention and Care of Tuberculosis in Canada R G Ferguson—p 131
*Fluorosis with Report of Advanced Case L G Kilborn T S Outerbridge and Hai Peng Lei—p 135
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Pneumokomoses: Developments, Doubts, Difficulties E R A. Meredith—p 169
Infectious Mononucleosis B F Paige—p 173
Management and Treatment of Pelvic Endometriosis P J Kearns—p 176
Adult Gaucher's Disease. A H Squires O Kofman and J N Cunningham—p 178
Congenital Cystic Disease of Lung R. M. Levine—p 181

Fluorosis—Kilborn and his co-workers warn that the use of sodium fluoride to decrease the incidence of dental caries should not cause one to lose sight of the dangers from large doses of the substance. When Kilborn and others traveled in Southwest China for anthropologic studies among the Miao and other aboriginal races, they were puzzled by the high incidence of a peculiar type of "arthritis" and joint ankylosis that seemed to afflict a majority of the adult inhabitants of a number of villages. In many of the older persons the disease had advanced to such an extent that they appeared to be 'set' in semisitting positions. Persons born and brought up in these villages were affected by the time they were 17 or 18 years of age. Roholm's monograph on fluorine intoxication brought to light the similarity in appearance between the photographs of the Danish cryolite workers and the crippled Miao peasants. Roholm had demonstrated that the inhalation and absorption of cryolite dust over half of which is fluorine, caused extensive bone and joint changes. The authors reproduce photographs of the bones of a man who had a severe form of fluorosis and who had lived in the region in China where the water had a fluorine content of around six parts per million. The authors feel that it is possible that endemic centers exist on

the North American Continent but that the true cause of the disabling spondylitis or other joint affections may not have been recognized and a diagnosis of chronic arthritis may have been made.

Cancer Research, Chicago

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Comparison of Tumor and Normal Tissues with Respect to Factors Affecting Rate of Anaerobic Glycolysis G A LePage—p 77
Effects of Growth Inhibitor and Other Factors on Tissue Cathepsins of Tumor Bearing Rats R N Feinstein—p 93
Effect of Nitrogen Mustard on Granulocytic Cells as Observed by Marrow Culture Technique E E Osgood and I T Chu—p 98
Liver Catalase of Tumor Bearing and Leprous Rats A L Dounce and R P Shanewise—p 103
Transplanted Mouse Leukemia as Test Object for Evaluation of Chemotherapeutic Agents N C. Geisse and A Kirschbaum—p 108

Connecticut State Medical Journal, Hartford

14 1-92 (Jan) 1950

Audit of Treatment of Breast Cancer at the Hartford Hospital 1932-1939 D B Wells—p 3
Mesenteric Vascular Occlusion—A Diagnostic Surgical Problem. J O L. Nolan and L A St. John—p 16
Primary Atypical Pneumonia in Children Review of 34 Cases M F Randolph—p 19
Tumor of Urachus W R Van Tassel—p 27
Survey of Intern Distribution Views on Intern Placement Plan and Related House Staff Problems in Connecticut Area. R R. Nesbit—p 30

Diseases of Nervous System, Chicago

11 1-32 (Jan) 1950

*Lumbar Intervertebral Disc Rupture F K Bradford—p 3
Some Immature Reactions in College Students P L White—p 20
Insensitivity to Pain as Complication of Phenurone Therapy in Epilepsy F M Forster and K. Frankel—p 24
Apparatus Supplying Auditory Stimulus for Induction of Hypnosis J M Schneck—p 26
Effects of Oral Tolserol on Some Aspects of Electroshock Convulsions. F D Greer—p 27

Lumbar Intervertebral Disk Rupture—According to Bradford, herniation of the nucleus pulposus occurs between the fourth and fifth lumbar vertebrae or at the lumbosacral junction in over 95 per cent of all herniations in the lower part of the spine. The fifth lumbar nerve is usually affected at the fourth disk and the first sacral nerve at the lumbosacral disk. The diagnosis of a ruptured lumbar disk is predominantly a clinical one. Pain is usually the incapacitating symptom. A history of injury during lifting or twisting is of significant value. Disk rupture is rare when sciatic pain has occurred with no episodes of mechanical back disability either preceding or accompanying the sciatic pain. The greater the severity and duration of sciatic pain, the greater is the likelihood of disk rupture. Accentuation of sciatic pain by coughing, straining or sneezing points to intraspinal pathology most usually a ruptured disk. Well localized numbness or paresthesia of the leg is often as reliable an index of a root lesion as is objective sensory change. Significant reduction of lumbar lordosis with or without tilting of the pelvis, in the presence of a severe sciatic pain, is valuable evidence of rupture. A positive reaction to a Lasegue test, while almost uniformly present in disk rupture does not specifically indicate this condition. A positive jugular compression (Naffziger) reaction is strong evidence of an intraspinal lesion. Reproduction of radiating pain by firm paravertebral pressure is definitely suggestive of disk rupture. Root changes—motor sensory or reflex—are of great significance when of a degree to be completely objective. Roentgen examination is of more importance in excluding other conditions than in substantiating the clinical diagnosis of a ruptured intervertebral disk. Spinal puncture is often necessary in the presence of severe symptoms of short duration. A history of syphilis severe paralysis or other findings which are not entirely the rule necessitate a lumbar puncture in cases of longer duration. Myelography is necessary only when the symptoms are sufficiently serious to require surgical intervention. When no surgical emergency exists conservative treatment should be instituted for several months. Operation on a ruptured intervertebral disk is emergent only when pain is unbearable or when a serious defect in nerve function exists. Radicular involvement

should be treated by operation on the disk, which should not be uniformly combined with spinal fusion. Fusion may be done in patients with disabling back symptoms after surgical treatment of the disk.

Georgia Medical Association Journal, Atlanta

39 1-50 (Jan) 1950

- Congenital Intrinsic Duodenal Obstruction Report of 9 Cases L Grove and E Rasmussen—p 1
Burns J D Martin Jr, R Caudle and J M B Bloodworth Jr—p 10
Goiter Hashimoto Type T C Davison and A H Letton—p 19
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Right Thoracic Approach in Combination with Laparotomy for Resection of Cancer of the Esophagus at the Level of Arch of Aorta R King—p 30
Public Relations Good and Bad E Calloway—p 33

Illinois Medical Journal, Chicago

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- Immunization in Early Childhood L W Sauer—p 73
Medicolegal Problems of Clinical Laboratory S A Levinson—p 76
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Persistent Patent Ductus Arteriosus R B Bettman—p 87
Cystitis in Female Interstitial Cystitis C O Ritch—p 92
Cutaneous Biopsy Safe and Valuable Diagnostic Procedure S J Zakon and I Eiringer—p 94
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Chronic Severe Ventricular Aneurysm R T Farley and G S Schwerin—p 98
Dermatomyositis B Shulman and D Cohen—p 102

Journal of Clin Endocrinology, Springfield, Ill

10 1-120 (Jan) 1950

- *Piperidylmethyl Benzodioxane (933-F), Hypertension, and Pheochromocytoma E Calkins, G W Dana, J C Seed and J E Howard—p 1
Production of Endogenous "Salt Active" Corticoids as Reflected in Concentrations of Sodium and Chloride of Thermal Sweat J W Conn and L H Louis—p 12
Role of Adrenal Cortex in Somatosexual Disturbance in Infants and Children Clinico-Pathologic Analysis M M Melchior and G F Cahill—p 24
Color Test for Dehydroisandrosterone and Closely Related Steroids, of Use in Diagnosis of Adrenocortical Tumors W M Allen, S J Hayward and A Pinto—p 54
Simple Method for Analyzing Complicated Absorption Curves, of Use in Colorimetric Determination of Urinary Steroids W M Allen—p 71
Comparison of Chemical and Biologic Assay of Cortin Like Substances in Normal Male Urine A N Wick, E Pecka Jr and R Medz—p 84
Pregnanediol Excretion in Normal Women J Rogers and S H Sturgis—p 89
Improved Procedure for Quantitative Estimation of Urinary Pregnanediol R E Hoyt and M G Levine—p 101
Gonads in Laurence Moon Biedl Syndrome Three Case Reports with One Partial Autopsy C Francke—p 108

Piperidylmethyl-Benzodioxane and Pheochromocytoma

—Calkins and co-workers administered piperidylmethyl-benzodioxane (933-F) in 20 mg test doses to 120 patients with hypertension. The drug competes with epinephrine and allied compounds as an epinephrine-specific receptor and discloses, with the dose employed, that component of hypertension which is directly due to such compounds. Eight patients with apparent organic hypertension did not respond to 933-F with a fall in blood pressure. The remaining 112 patients with hypertension were suspected to have a pheochromocytoma. In only two of these patients was administration of 933-F followed by a prompt fall in blood pressure of sufficient extent and duration to be judged as a positive result. One of the two patients with a clearly positive response to 933-F, a man aged 37, was subsequently proved to have a pheochromocytoma—the tumor was excised with complete relief of his symptoms. Extracts of the tumor contained large amounts of nor-epinephrine, and the pressor effect of these extracts in dogs was inhibited by 933-F. The second patient, a girl aged 7, who gave a positive response to 933-F had a large-cell neuroblastoma. Her hypertension was relieved after removal of the tumor, but recurred with metastases. There were significant differences between the blood pressure responses of these two patients. In the first patient treatment with 933-F reduced the blood pressure to normal. It was further reduced when the pedicle of the tumor was clamped and later was stabilized at a normal level. The hypertension was due to the direct effects of the pressor substance on the arteriolar bed and the myocardium. In the second patient the test dose of 933-F pre-operatively lowered the blood pressure from 210 systolic and 150 diastolic to 160 systolic and 110 diastolic but did not reduce it to normal.

The pressure remained relatively stable during the operation, even when the pedicle of the tumor was clamped. The pressure did not become normal until three weeks after the operation. Results of the benzodioxane test may be equivocal or negative in certain patients with proved pheochromocytoma. The blood pressure may remain stable throughout the operation and return to normal only gradually. The pheochromocytoma may produce hypertension in these patients indirectly by stimulating the pituitary and the adrenals, rather than directly by the effect of their secretions on the arteriolar bed or cardiac musculature.

Journal of Clinical Investigation, Cincinnati

29 1-140 (Jan) 1950 Partial Index

- Significance of Serum Cholesterol in Thyroid Disease J P Peters and E B Man—p 1
Observations on Treatment of Human Gastric and Colonic Mucus with Lysozyme G B J Glass, B L Pugh, W J Grace and S Wolf—p 12
Notes on Case of Congenital Heart Disease with Cyanotic Episodes W F Hamilton, J A Winslow and W F Hamilton Jr—p 20
Effects of Intravenously Administered Aminophylline on Cerebral Circulation and Metabolism in Man R L Wechsler, L M Kleiss and S S Kety—p 28
Colorimetric Determination of Lipase and Esterase in Human Serum A M Seligman and M M Nicholas—p 31
Study of Effect of Anion Exchange Resin on Gastric and Duodenal Secretions and Gastric Emptying C W Wirts and M E Rehfuess—p 37
Choline Containing Phospholipids of Serum M J Albrink—p 46
Experimental Malaria in Man A Henschel, H L Taylor and A Keys—p 52
Considerations of Renal, Hepatic and Extremity Arteriovenous Differences in Concentration of Radiomercury of Mercurial Diuretic P Milnor, G Burch, T Ray and others—p 72
Chloramphenicol and Other Antibiotics in Treatment of Typhoid Fever and Typhoid Carriers T E Woodward, J E Smadel and H L Ley Jr—p 87
*Effects of Suggestion and Conditioning on Action of Chemical Agents in Human Subjects—Pharmacology of Placebos S Wolf—p 100
Excretion of Hippuric Acid in Subjects with Free Anxiety H Persky, R R Grinker and I A Mirsky—p 110
Experimental Evidence on Nature of Cutaneous Hyperalgesia J D Hardy, H G Wolff and H Goodell—p 115

Pharmacology of Placebos—Wolf describes some "drug effects" which are not attributable to the chemical properties of the agents. Initial observations were made on a man with a large gastric fistula, in whom it was possible to observe directly the gastric mucous membrane, correlating changes in color and turgidity with simultaneous measurements of secretion and motor activity. Studies were also made on four other human subjects. Among the factors which appeared to be of importance in the experiments are (1) the state of the end organ at the time of administration, (2) the setting in which the agent was administered, the presence of the experimenter and the effects of suggestion and (3) previously established habits of reaction. The frequency of "placebo effects" and their magnitude probably vary from person to person and from time to time. More than 100 experiments have been performed with pharmacologic agents on the subject used in this study, and, although it is not possible to state definitely how frequently significant modification of the pharmacologic effect occurred because of situational factors, minor evidences of such could be detected in well over 50 per cent of the observations. "Placebo effects" which modify the pharmacologic action of drugs or endow inert agents with potency may be associated with measurable changes at the end organs. These effects are at times more potent than the pharmacologic action attributed to the agent. The difficulty of evaluating new therapeutic agents stems not only from inadequately curbed enthusiasm of the investigator but also from the actual physiologic effects of their "placebo" action.

Journal of Immunology, Baltimore

64 1-38 (Jan) 1950

- Quantitative Study of Arthus Phenomenon Induced Passively in Guinea Pig B Benacerraf and E A Kabat—p 1
Production of Specific Antisera for Enzymes that Decompose Carbohydrates of Pneumococcus Types III and VIII G M Sickles and M Shaw—p 21
Production of Specific Pneumococcus Carbohydrate Splitting Enzymes in Media to Which Specific Substrate Was Not Added M Shaw and G M Sickles—p 27
Recurrence of Influenza A Prime in a Boarding School After Two Years M M Sigel, A W Kitts, A B Light and W Henle—p 33

Journal of Investigative Dermatology, Baltimore

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- Sensitization to Antistine M M Mosko and W L Peterson—p 1
Failure of Aureomycin and Chloromycetin (Chloramphenicol) in Dermatitis Herpetiformis C Shaw—p 3
Experimental Malaria in Man II Production of Sweat Retention Anidrosis and Miliaria Crystallina by Various Kinds of Injury W B Shelley and P N Horvath—p 9
Observations on Peripheral Blood Flow in Chronic Lupus Erythematosus S E Huff H L Taylor and A Keys—p 21
Histochemical Study on Polysaccharides in Normal and Diseased Skin R Stoughton and G Wells—p 37
Herpes Zoster Treatment of Pain with Dehydroergotamine-45 F C Combes O Canizares and S Simuango—p 53
Studies in Mucous Membrane Sensitization Part III Effects of Toothpowder Containing Penicillin L Goldman and A J Tronstein—p 57
Basidiomycete Probably Causing Onychomycosis A M Kligman—p 67

Journal of Lab and Clinical Medicine, St Louis

35 1-166 (Jan) 1950

- The Pure Delight E V Allen—p 2
Effects of 4-Hydroxycoumarin Anticoagulant No 63 upon Prothrombin Time in Dogs and Human Beings W D Battle R T Capps O S Orth and O O Meyer—p 8
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Hemolytic Disease of the Newborn I Analysis of Sample of Obstetric Population S P Lucia and M L Hunt—p 24
Id II Analysis of Maternal Ante-Partum Factors in Sample of Sensitized Rh Negative Women in Relation to Clinical Condition of Their Offspring S P Lucia and M L Hunt—p 28
Effect of Vitamin B₁₂ on Urinary Phenol Fractions in Pernicious Anemia L D Abbott Jr and G W James III—p 35
Biochemical Studies on Urokon (Sodium 2, 4, 6-Triodo-3 Acetylaminobenzoate) New Pyclographic Medium D R Neuhaus A A Christman and H B Lewis—p 43
Effects of New Sympatholytic Drug (Priscol) on Peripheral Circulation in Man K G Wakim G A Peters and B T Horton—p 50
Effect of Procaine Penicillin on Bacteriostatic Action of Sulfadiazine D Goldberg and B M Kagan—p 63
Relationships Between Serum Water or Weight and Protein Concentration T S Danowski and G H Gilmore—p 67
Comparative Electrophoretic and Chemical Estimations of Human Serum Albumin Evaluation of Six Methods B V Jager T B Schwartz E L Smith and others—p 76
Renal Excretion and Excretion of Carinamide (4 Carboxyphenylmethanesulfonamide) H M Peck, E K Tillson W S Waller and K H Beyer—p 87
Removal of Cations from Solutions and Rat's Alimentary Canal by H Form Resins J S Chen and S Freeman—p 99

Effect of a Sympatholytic Drug on Peripheral Circulation.—Wakim, Peters and Horton studied the effects of 2-benzyl-4-5-imidazole hydrochloride (priscol®) on the peripheral circulation of 10 volunteers, 5 with various degrees of multiple sclerosis and 5 subject to various types of headache. The drug was administered intravenously in a single dose of 50 mg in 2 cc of solution over a period of two minutes. Observations were made with the aid of the venous occlusion plethysmograph and a compensating spirometer recorder, the digital plethysmograph and potentiometric recording of the skin temperature over various regions of the body, including the fingers and toes. The oral temperature and the arterial blood pressure were obtained by the usual clinical procedures. The sympatholytic drug produced in the arms and legs a definite increase in blood flow which lasted several hours. The systolic blood pressure increased an average of 6 mm of mercury and the diastolic decreased an average of 11 mm. The changes in arterial blood pressure were transient, the blood pressure returned to the pre-injection level within fifteen minutes after intravenous administration of the drug. There was a definite and immediate increase in heart rate which averaged 26 beats, with a range of plus 6 to plus 48 per minute over the control rate. The heart rate returned to the preinjection level within fifteen minutes after administration of the drug. There was a definite increase in the amplitude of the digital pulse even during the rapid heart rate produced by the sympatholytic agent. The greatest increase in the temperature of the skin was produced over the lower extremities, especially the toes. Since the control temperature of the toes was the lowest of all the areas over the various parts of the body from which cutaneous temperatures were recorded, it can be assumed that the drug produced the greatest vasodilatation in regions where vasoconstriction was most pronounced, namely, in the toes.

Journal of the Mount Sinai Hospital, New York

16 267-334 (Jan-Feb) 1950

- Searching for New Chemotherapeutic Agents—Travaglou S A. Waksman—p 267
Maxillo-Facial Triad and Its Corrections I B Goldman—p 285
Choriocarcinoma of Infundibulum with Discrete Hemic Metastases in Posterior Lobe of Pituitary G F Perry—p 291
Production of Constant Plasma Penicillin Level by Means of Daily Injections of Procaine Penicillin in Oil with Aluminum Monostearate. L E. Schaefer and I A. Rashkoff—p 300
To-And-Fro Motion Range at Fourth and Fifth Lumbar Interspaces S S Tanz—p 303
Life's Later Years Studies in Medical History of Old Age. F D Zeman—p 308

J Neuropathology & Exper Neurology, Baltimore

9 1-118 (Jan) 1950

- Neuropathology Historical Sketch G B Hassin—p 1
Experimental Studies in Allergic Encephalomyelitis Prevention and Production—III A Ferraro L Roizin and M T Cazzullo—p 18
*Fatalities Resulting from Exposure to Simulated High Altitudes in Decompression Chambers Clinicopathologic Study of 5 Cases W Haymaker and C. Davison—p 29
*Disseminated Necrotizing Panarteritis (Periarteritis Nodosa) Clinicopathologic Report N W Winkelman and M T Moore—p 60
Experimental Allergic Brain Inflammation Morphological Study R A Good—p 78
Amyloid Degeneration of Human Brain Following X-Ray Therapy K. Lowenberg Scharenberg and R C. Bassett—p 93

Fatalities from Simulated High Altitudes.—Haymaker and Davison report the occurrence of death from exposure to simulated high altitudes of 30,000 to 38,000 feet in 5 airmen who were subjected to lowered barometric pressure in decompression chambers for purposes of indoctrination in the hazards of flying at high altitudes and in the use of oxygen equipment. Four of the men were between the ages of 22 and 26, and 1 was 38. All were in good health before the tests were begun. Although there is decreased oxygen pressure of arterial blood at altitudes of 30,000 to 38,000 feet despite the breathing of pure oxygen, hypoxia was not regarded as a determining factor in the outcome, but rather aeroembolism which led secondarily to fatal shock. Other factors, such as agglutination of erythrocytes and sludging could not be ruled out as important in the outcome. There were bends and/or chokes in only 2 instances. The disorder was manifested by focal cerebral signs in 4, and by apparently uncomplicated irreversible shock in the fifth. Most of the pathologic changes in the thoracic and abdominal viscera were those commonly observed in shock. Fat emboli in the lungs in 4 instances and in the brain in the fifth were believed to have entered the circulation in the bone marrow. The brain changes were characterized by congestive phenomena, ischemic damage of cortical nerve cells and beginning demyelination and glial proliferation perivascularly. Changes in the spinal cord similar to those in caisson and diver's sickness were observed in 1 case. Why death occurred in these particular 5 men was not ascertained. A tendency to adiposity or actual adiposity was the only known factor predisposing to decompression illness which was common to this group.

Disseminated Necrotizing Panarteritis.—Winkelman and Moore suggest the term disseminated necrotizing panarteritis instead of periarteritis nodosa or polyarteritis nodosa because it is anatomically and pathologically more accurate and more descriptive of the process. A man aged 63 presented the clinical quadrad of asthma peripheral neuropathy, eosinophils in excess of 25 per cent and the use of sulfonamide compounds and penicillin on two occasions. The antemortem diagnosis of necrotizing panarteritis was substantiated by biopsy. An Addisonian syndrome was present which was later verified by examination of the adrenals. Involvement of the nervous system was recognized clinically as the disease progressed and was confirmed by autopsy. Laboratory observations were characteristic of the disease. Gross and/or microscopic studies revealed involvement of all the systems of the body except the lungs with the lesions of necrotizing panarteritis. Microscopic studies of the brain revealed involvement of the smaller arteries in the meninges, choroid plexus, cortex and subcortex. There were infarctions secondary to either rapid or slowly thrombosed vessels. There were also various stages of healed lesions in the cerebral cortex and subcortex, as well as in the cerebellum. The changes in the vessels were characteristic of necrotizing panarteritis. The large vessels were

spared The meninges showed evidence of both recent and old hemorrhage and mild inflammatory invasion The most provocative and seemingly the most valid etiologic concept of necrotizing panarteritis is that of an irreversible allergic process in the vessel wall The collagen in the medium-sized blood vessels is probably the tissue in which the initial allergic phenomenon occurs

Journal of Nutrition, Philadelphia

40 1-176 (Jan) 1950 Partial Index

- Biological Values of Six Partially Purified Proteins for Adult Albino Rat H H Mitchell and J R Beadles—p 25
Resurvey of Nutritional Status in Norris Point, Newfoundland G A Goldsmith W J Darby, R C Steinkamp and others—p 41
Influence of Tryptophan upon Urinary Nitrogen and Amino Acid Excretion in Rat A A Wykes, L M Henderson and C A Elvehjem—p 71
*Comparison of Parenterally and Orally Supplied Protein Hydrolysate for Utilization of Nitrogen in Long Continued Feeding Experiments C Alper, B F Chow and S DeBiase—p 81
Interrelationship of Folic Acid Vitamin B₁₂ and Choline Effect on Hemorrhagic Kidney Syndrome in Rat and on Growth of Chick A E Schaefer W D Salmon, D R Strength and D H Copeland—p 95
Relation of Structure of Choline-like Compounds to Renal Antihemorrhagic Action A D Welch—p 113
Amino Acids in Blood and Urine of Human Subjects Ingesting Different Amounts of Same Proteins B F Steele M S Reynolds and C A Baumann—p 145
Effect of Xanthophyll on Utilization of Carotene and Vitamin A by Rat. B Kelley and H G Day—p 159

Utilization of Parenterally and Orally Supplied Protein Hydrolysate—Alper and his co-workers describe observations on dogs which were depleted of protein reserves by protein-free diets with and without plasmapheresis Repletion was carried out by parenteral infusion of casein hydrolysate for an extended period, followed by a like period of oral feeding of casein hydrolysate Even though partial repletion had been effected by intravenous infusion of casein hydrolysate, the dogs retained more nitrogen when the oral route was used than when the parenteral route was used, although more of the nitrogen retained from parenteral feeding was utilized for plasma protein regeneration

Journal of Urology, Baltimore

63 1-194 (Jan) 1950 Partial Index

- *Renal Injuries J C Sargent and C R Marquardt—p 1
Evaluation of Merits of Cystoscopy and Retrograde Pyelography in Management of Renal Trauma L A Orkin—p 9
Successful Nephrectomy in Known Hemophilic V Vermooten—p 30
Consideration of Problems Presented by Unilateral Cystic Kidney Disease N Kutzman and H R Sauer—p 34
Hypoplastic Kidney and Atrophic Pyelonephritic Kidney J S Ritter and S E Kramer—p 48
Hematuria and Sickle Cell Disease Unexplained, Gross Unilateral, Renal Hematuria in Negroes Coincident with Blood Sickling Trait. W E Goodwin, E F Alston and J H Semans—p 79
Kidney Function in Patients with Paraplegia G W Rogers and E Bors—p 100
Interstitial Cystitis J A Seaman—p 105
Complete Regression of Carcinoma of Bladder Following Ureterosigmoidostomy L G Goldberg—p 116
Study of Untreated Bladder Cancers H R Sauer, M S Blick and D J Meehan—p 124
Choice of Operative Approach for Prostatectomy J H Harrison and E F Poutasse—p 132
Transurethral Prostatic Resection Comparison of Two Series of Cases M A Johnson and A H Gundersen—p 147
Transient Bacteremia Immediately Following Transurethral Prostatic Resection C L Biorn, W H Browning and L Thompson—p 155
Ivanishevitch Operation E L Lewis—p 165
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Erythroplasia of Queyrat 2 Case Reports M E Klunger and R U Northrip—p 173
Congenital Absence of Vas Deferens Review of Literature and Report of 3 Cases R E Nelson—p 176
Actinomycosis of Testicle R H Hepburn—p 183
Surgical Treatment of Elephantiasis D F McDonald and C Huggins—p 187

Renal Injuries—The combined experience of Sargent and Marquardt consists of about 200 cases of renal injury treated during the past quarter century Minor fractures existed in 120 cases, major fracture in 72 and shattered kidney in 14 All minor renal injuries were treated conservatively Contusions and minor parenchymal fractures always heal spontaneously and without serious consequence Of the 72 cases with major parenchymal fracture but with pelvic architecture reasonably preserved, only 2 were subjected to immediate surgical treatment This was before the authors had learned to have proper

regard for shock when contemplating major surgical measures One of the patients died an hour after removal of a fractured kidney The second patient recovered after drainage of a simple perirenal hematoma The other 70 nonfatal cases of parenchymal fracture were treated expectantly 61 patients recovered from their renal injury and 27 of these, who have been followed three to seventeen years, are free from disability In 9 of the 70 patients treated conservatively there developed complications that required subsequent surgical treatment All 9, with the exception of a pensioned veteran who refused nephrectomy, regained their health Of the 14 cases in which the kidney was completely shattered, 6 were diagnosed at autopsy, there having been no opportunity for other than expectant treatment Of the 2 other cases of shattered kidney that were treated expectantly, one, a shrapnel injury, required nephrectomy months later for a urinary fistula The other required nephrectomy seven days later when well out of shock Six of the 14 cases with shattering injury had immediate operation Four of the 6 were of that type about which there is agreement the patient with a kidney shattered beyond hope of saving, presenting signs of progressive bleeding, yet ready for operation before shock has set in Each of these 4 patients recovered The remaining 2 had to be operated on to close bowel perforations Despite considerable shock, a nephrectomy was added, 1 patient died on the operating table, the other within hours The authors believe that no renal injury can be managed intelligently without knowledge as to its type and degree, that means usually a retrograde pyelogram must be made Surgical treatment should be withheld until a clearcut indication for it arises They regard renal surgery to be unwise, even to control hemorrhage, if the patient is in profound shock

Laval Médical, Quebec

15 1-142 (Jan) 1950 Partial Index

- Anesthesia in Pediatrics F Hudon and A Jacques—p 12
Intercapillary Glomerulosclerosis (Kimmelstiel and Wilson Syndrome) R Lemieux—p 23
Removal of Lacrimal Sac and Intranasal Fistulization H Pichette, J Audet and C Géhnas—p 31
*Myasthenia Gravis in Child Aged Four and a Half Years R Thibaut deau—p 44

Myasthenia Gravis in Child—Thibaudeau reports 1 case of myasthenia gravis in a boy aged 4½ years There was a sudden onset of the disease with unexplained fatigue Ptosis of the upper eyelids was the first sign serving as a guide to the diagnosis Within four months after the appearance of this sign the pseudoparalysis continued its course by involving the muscles of the face, of the extremities and of the trunk Death resulted from cardiac failure during a myasthenic attack within six months after the onset of the disease Death could not be prevented by the administration of large daily doses of eight to twelve tablets of 15 mg of neostigmine bromide by mouth and additional subcutaneous injections of three and one half ampuls of 15 mg neostigmine methylsulfate per day Roentgen irradiation of the thymus was performed several days before death to combat a presumed hypertrophy of the thymus A degenerative inflammatory process in the thymus was demonstrated at necropsy

Missouri State Medical Assn Journal, St. Louis

47 1-80 (Jan) 1950

- Regulation of Volume and Composition of Body Fluids J P Peters—p 9
Epigastric Pain A C Ivy—p 17
Bilateral Cortical Necrosis of Kidneys W A Werner, R I C. Muckerman and H N Allen—p 20
Liver Dysfunction Diagnostic Laboratory Procedures W A Knight Jr and R O Muether—p 25

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- Endoscopic Treatment of Tumors of Bladder Experiences with 525 Cases C E Burford, J E Gleen and E H Burford—p 97
Clinical Aspects of Acute Myocardial Infarction E B Bay—p 106
Cafergone for Relief of Headache R E Ryan—p 107
Comparative Effectiveness of Methylergonovine Tartrate (Methergine) and Ergonovine in Third Stage of Labor L M Riordan H C Stricker, N A Correnti and H P Torkelson—p 108
Diabetes Mellitus Treatment with Intermediate Insulins A R Colwell—p 113

New England Journal of Medicine, Boston

242 77-114 (Jan 19) 1950

- *Coccidioidomycosis Hazard Involved in Diagnostic Procedures with Report of Case J M Looney and T Stein—p 77
- Complete Pelvic Evisceration in Male for Complicated Carcinoma of Rectum Use of Defunctionalized Sterilized Loop of Colon for Ureterosigmoid Anastomosis J E Thompson and C W Howe—p 83
- Adrenocortical Hypoplasia in Newborn Infant Report of Case with Replacement Therapy R W Provenzano—p 87
- Effect of 10 per Cent and 100 per Cent Oxygen Inhalation on Certain Liver Function Tests P Kaufman J Hollo, J Rosenthal and others—p 90
- Urology F H Colby—p 93
- Amyloid Infiltration of Tongue Salivary Glands and Cervical Lymph Nodes Probable Plasma Cell Myeloma—p 98
- Renal Vein Thrombosis in Newborn Infant—p 100

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- Better Surgery and Better Surgeons E M Porter—p 115
- Chloromycetin (Chloramphenicol) in Treatment of Infections W L Hewitt and B Williams Jr—p 119
- Withdrawal Treatment of Drug Addiction M Nyswander—p 128
- Prophylaxis of Rhus Toxicodendron Dermatitis R J Hoagland—p 130
- Obstetrics B Tenney Jr—p 133
- Pulmonary Emphysema Sarcoidosis of Lung and Bronchial Lymph Nodes—p 149
- Acute Diverticulitis of Esophagus with Hemorrhage—p 152

Coccidioidomycosis—According to Looney and Stein, a serious hazard is involved in making a laboratory diagnosis of the presence of *Coccidioides immitis* in suspected material. The workers in the hospital laboratories who handle pathogenic material are affected primarily by this risk. A survey of the literature shows that 8 such cases of infection with clinical manifestations of coccidioidomycosis, which were proved by the isolation and identification of the organism, have been reported. One of these cases was fatal. An additional 25 cases of infection as shown by positive coccidioidin skin tests were also due to handling of cultures of the organism in laboratories. The authors report 1 case of disseminated infection with *C. immitis* contracted by a hospital laboratory technician, during the handling for thirty to forty-five minutes of some old cultures of a fungous growth which later was identified as *C. immitis*. In examining these cultures he had removed the top of the Petri dish and had studied the gross specimens at close range with a magnifying lens, in addition to making smears for microscopic examination. Within two to three weeks he noted severe chest pain and spiking temperatures typical of the acute respiratory form of the initial infection. He continued to run a septic course for two months with increased leukocytosis and eosinophilia. A definite early diagnosis was made by recovery of the organism from the sputum. Rapid enlargement of the mediastinal lymph nodes was demonstrated on roentgenologic examination. The patient was confined to the hospital for fourteen months because of involvement of the bones of the right foot and left hand. Rest and symptomatic treatment are the only means now available for handling coccidioid infections. Examination of the older growths for chlamydispores is an extremely hazardous procedure and should be forbidden. The danger is not only that the person making the examination may be infected but also that others who may be long distances from the spot may also be infected. Subclinical infections occurred in 3 additional technicians among 20 persons working in the same laboratory.

New Jersey Medical Society Journal, Trenton

47 47-96 (Feb) 1950

- Brain Tumors in Children S A Sandler—p 49
- Two-Lateral Anastomosis Safe, Simple and Efficient Technique C H Evans—p 56
- Treatment of Menopausal Symptoms with New Synthetic Estromimetic Compound J J Rommer—p 58
- Hereditary Hemorrhagic Telangiectasia with Severe Epistaxis Report of 3 Cases O Ganibacorta—p 61
- Arthritic Derangements of Hip B M Halbstain—p 64
- Amphetamine Phosphate Preparations in Treatment of Obesity Clinical Evaluation S W Kalb—p 66
- Cranial Nerve Pareses Following Anti Rabies Vaccination Case Report W Rubin and N Bowman—p 68
- Management of Lower Nephron Nephrosis Following Transfusion for Post Partum Hemorrhage A H Krakower and S Gerson—p 72

Ohio State Medical Journal, Columbus

46 105-200 (Feb) 1950

- Acute Appendicitis C R Lulenski—p 121
- Sudden Death During Surgical Operations with Report of Efforts to Revive Heart H Feil and H K Hellerstein—p 125
- Propyl and Methyl Thiouracil and Radioactive Iodine in Treatment of Hyperthyroidism E P McCullagh—p 127
- Interpretation of Psychosomatic Complaints to the Patient B Crider and R Schott—p 130
- *Treatment of Acute Leukemia of Childhood R W Heinle—p 133
- Elective Surgery in Infancy H W Lehrer H G Lehrer and D R Lehrer—p 136
- Transient Diabetes Insipidus Complicating Bacterial Endocarditis S M Sancetta and H A Zimmerman—p 140

Folic Acid Antagonists in Leukemia—According to Heinle the pteroylglutamic acid antagonists are compounds chemically similar to pteroylglutamic acid. Thus, aminopterin (4-amino-pteroylglutamic acid) has an amino group (NH₂) in place of a hydroxyl-group (OH) of pteroylglutamic acid. A-methopterin (4-amino-N¹⁰-methyl pteroylglutamic acid) has a similarly substituted amino group in addition to which a methyl group (CH₃) replaces one hydrogen atom of pteroylglutamic acid. Pteroylglutamic acid is necessary for the proper growth of leukocytes, as well as in the metabolism of many, if not all, other cells of the body. The antagonists act by competing with folic acid in the metabolism of the cells. The therapeutic use of the pteroylglutamic acid antagonists in the acute leukemias was begun after it had been demonstrated that acute leukemia in children and chronic myeloid leukemia in adults were aggravated by the administration of pteroylglutamic acid. Twenty-six children with acute leukemia, 6 adults with acute monocytic and 2 with acute lymphoid leukemia were treated with the pteroylglutamic acid antagonists at the University Hospitals of Cleveland. In addition, 2 adults with chronic myeloid leukemia were treated with a weak antagonist in association with a diet deficient in pteroylglutamic acid. The author observed that considerable remissions with prolongation of life could be attained with the use of the pteroylglutamic acid antagonists in acute leukemia of childhood but that acute leukemia in adults was entirely refractory, although other workers have reported beneficial effects in some cases. The antagonists are extremely toxic and can cause death unless administration is carefully controlled. The use of blood transfusions and penicillin constitutes an important part of the treatment of acute leukemia.

Oklahoma State Medical Assn Jour, Oklahoma City

43 1-44 (Jan) 1950

- Task of Practitioner in Child Health Protection M E Wegman—p 4
- Hay Fever in Infants T Shuller—p 9
- Early Diagnosis and Treatment of Meningitis in Infants L S Frank—p 12
- I've Felt This Way Since Mary Was Born G Rogers—p 14
- Pediatrics in General Practice H V Sturgeon—p 17

43 45-84 (Feb) 1950

- Cancer of Stomach Clinical Problems Influencing Prognosis J E Berl—p 48
- *Newer Concepts in Treatment of Bronchiectasis R L Anderson—p 53
- Aureomycin and Chloromycetin E I Mulmed—p 55
- Role of University Hospital in Cancer Program H G Bennett Jr—p 61
- Participation of Practicing Physician in Local Health Service C E Green—p 63

Treatment of Bronchiectasis—Anderson stresses that once bronchiectatic changes have developed in the segmental bronchi they are not reversible and surgical removal is the only reliable method. Closer attention to the detailed anatomy of the lung has revealed definite segments, each of which has its own bronchus and arterial blood supply. The bronchus and artery can be identified by hilar dissection and these structures ligated and the segments removed. The advantages of segmental resection over lobectomy are that only diseased portions of the lung are removed that all possible normal lung is retained that vital capacity is not sacrificed, that the remaining lung need not reexpand to fill such a large space as in lobectomy and that bilateral bronchiectasis can be surgically attacked and bilateral disease removed. The author regards segmental resection of the lung as the most satisfactory treatment of bronchiectasis.

Philippine Medical Association Journal, Manila**25 519-600 (Nov) 1949 Partial Index**

- *Influence of Artificially Enriched Rice on Beriberi Mortality in Bataan Province. J Salcedo Jr, M D Bamba, E O Carrasco and others —p 519
 Cancer Control in the Philippines Role of Private Practitioners and Surgeons J Z Sta Cruz —p 535
 Ophthalmological Misconceptions in Medical Practice in Philippines G de Ocampo —p 545

Artificially Enriched Rice and Beriberi Mortality—Salcedo and associates point out that in the Philippines the death rate from beriberi is exceeded only by that from tuberculosis. An attempt is being made to reduce the incidence of beriberi in selected municipalities of Bataan Province, an endemic area, through the artificial enrichment of the rice supply. As a basis for the experiment, an eight month clinical beriberi survey was made which included dietary appraisal, urine and blood examinations, and careful compilation of statistics of beriberi mortality. After this survey artificially enriched rice was tried in seven municipalities of Bataan Province with a total population of 63,508. The results after nine months indicate a more substantial and significant reduction in mortality from beriberi in the area fed with enriched rice than in five municipalities of the same province, with a total population of 29,393, where only ordinary polished rice was consumed.

Physiological Reviews, Baltimore**30 1-126 (Jan) 1950**

- Functional Significance of Venous Blood Pressure. E. M. Landis and J C Hortenstine —p 1
 Gastrointestinal Hormones M I Grossman —p 33
 Biochemistry of Melanin Formation. A B Lerner and T B Fitzpatrick —p 91

Public Health Reports, Washington, D C**65 1-42 (Jan 6) 1950**

- Studies of Pulmonary Findings and Antigen Sensitivity Among Student Nurses V Doubtful Reactions to Tuberculin and Histoplasmin C E Palmer and O S Petersen —p 1

65 43-70 (Jan 13) 1950

- Studies of Action of Sodium Fluoride on Human Enamel by Electron Microscopy and Electron Diffraction D B Scott, R G Picard and R W G Wyckoff —p 43
 Serological Survey for Murine Typhus Infection in Southwest Georgia Animals H B Morlan, E L Hill and J H Schubert —p 57

65 71-98 (Jan 20) 1950

- Effects of DDT Mosquito Larviciding on Wildlife IV Effects on Terrestrial Insect Populations of Routine Larviciding by Airplane H I Scudder and C M Tarzwell —p 71
 Q Fever—Epidemiological Note E A Beeman —p 88

Rhode Island Medical Journal, Providence**33 1-56 (Jan) 1950**

- Endometriosis Report of 400 Cases J Fallon, J T Brosnan, J J Manning and others —p 15
 Metastatic Calcification and Renal Failure Following Ertron Therapy in Aged Arthritic H Hecker —p 21
 Aureomycin in Treatment of Pemphigus Report of Case. P L Mathieu Jr —p 24
 Herpes Zoster Oticus Report of Case C A McDonald and W J O'Connell —p 28

Rocky Mountain Medical Journal, Denver**47 1-80 (Jan) 1950**

- Is the Patient Always Right? C P Bunch —p 20
 Clinical Variations of Renal Amyloidosis J C Tyor and H T Kuo —p 22
 Easily Constructed Inexpensive Rubber Walking Heel M E Gibbens —p 26
 Tick Paralysis in Northwestern United States and British Columbia W L Jellison and J D Gregson —p 28
 *Broadening Scope of Gastric Resection E S Judd Jr —p 33

The Broadening Scope of Gastric Resection—Judd stresses the following points in favor of operative treatment: 1 Lowered morbidity and mortality rates have extended gastric resection to a far larger proportion of cases. 2 Duodenal ulcer can still be controlled completely and permanently by adequate gastric resection. 3 Gastric resection is the treatment of choice in almost all cases of gastric ulcer. 4 Lessened risk of gastric resection extends its use to certain lesions encountered only

occasionally. 5 Failure of several less radical operations led the way to wider acceptance of resection. 6 Preoperative and postoperative adjuncts have been responsible for better results. 7 Technical improvements and modifications allow use of gastric resection even in conditions with extreme inflammation.

South Carolina Medical Assn Journal, Florence**46 1-36 (Jan) 1950**

- Difficulties in Diagnosis of Coronary Artery Disease. J A. Boone —p 1
 Sarcoidosis Case Report R W Lominack —p 3
 Traumatic Diaphragmatic Hernia K M Lippert, W J Rowe and H Protozky —p 5
 South Carolina Heart Association and Its Program of Cardiac Clinics J A Boone —p 11
 Cancer R W Postlethwait —p 13

46 37-68 (Feb) 1950

- Current Trends in Cancer Research J R Heller —p 37
 What Thoracic Surgery Has to Offer the General Practitioner H L. Rigdon —p 40
 Gangrene of Breast Associated with Diabetes Mellitus Report of Case. P K Switzer —p 42

U S Armed Forces Med Jour, Washington, D C**1 1-136 (Jan) 1950 Partial Index**

- Hypert thyroidism Diagnosis and Treatment U R Merikangas —p 1
 *Extrusion of Redundant Gastric Mucosa into Duodenum F C. Harris and E T Byrne —p 12
 Gunshot Wounds in 8th Air Force in World War II J A Rafferty —p 22
 Administration of Procaine Intravenously III Traumatic Surgery R J M Zeluff —p 26
 Bronchiectasis H A Lyons and T C Ryan —p 30
 Stevens-Johnson Disease Report of Case. W P Barba II and A M. Tyson —p 39
 Long Cuff Endotracheal Tube Its Manufacture and Use R T Knight and A B Tarrow —p 58
 Experiences with Marrow Nail Operation According to Principles of Kuentscher Gunshot Fractures of Femur Part V C Haebler —p. 65
 Spontaneous Rupture of Spleen in Relapsing Fever C W Legerton and W L Chambers —p 88
 Psychiatry in General Practice J L McCartney —p 91
 Advantages of Air Transportation of Patients W F Hall and J D Nolan —p 115
 Immunizations for Foreign Travel W F Hall —p 119
 About Army Medical Department P I Robinson and R J Richards Jr —p 121

Extrusion of Redundant Gastric Mucosa—According to Harris and Byrne the terms herniation, prolapse, extrusion and protrusion of the gastric mucosa have been used interchangeably for the condition in which the gastric mucosa is found sliding through the pyloric ring into the duodenum. This condition occurs frequently enough so that it must be considered as a possible causative factor in upper gastrointestinal complaints. The authors review observations on 30 cases, in 9 of which surgical treatment was employed. The pyloric ring was always palpated prior to section. The pyloric ring was believed to be constricted either by spasm or hypertrophy. In 2 instances there was evidence of trauma to the hypertrophic mucosal folds from the constricted pyloric ring. In 1 case visualization from the duodenal side revealed a rosette of red edematous gastric mucosa protruding through the pylorus, analogous to protruding hemorrhoids. The authors are of the opinion that the underlying causative factor may be primarily either spasticity or hypertrophy of the pyloric musculature. Histologic examination in 6 cases showed a moderate lymphocytic infiltration of the submucosa but insufficient evidence to establish chronic gastritis. The symptoms varied, but epigastric pain or upper abdominal distress was present in all cases. It may be confused with an ulcer-type pain. Abnormal sense of fullness after the consumption of a small amount of food was noted in a high percentage of patients. Vomiting was frequent. Hemorrhage was common. Gaseous eructation was so common that gall-bladder disease was nearly always suspected. Extrusion of the gastric mucosa into the duodenum can at times be suspected from the clinical history, but it can be confirmed only by roentgenoscopy. The protruding folds of hypertrophic mucosa form a "cauliflower" or "mushroom"-shaped area of decreased density in the shadow of the duodenal bulb. Many patients with this disorder can be kept free of symptoms under medical management. Surgical treatment is indicated in patients not responding to diet and antispasmodics. Excision of the extruded mucosa with pyloroplasty is probably the procedure of choice.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted
Single case reports and trials of new drugs are usually omitted

Annals of Tropical Medicine, Liverpool

43 261-392 (Dec) 1949 Partial Index

- Activation of Latent Kala Azar in Relation to Protein Metabolism N L Corkill—p 261
Experimental Schistosomiasis II Maintenance of Schistosoma Mansoni in Laboratory with Notes on Experimental Infection with S Haematobium O D Standen—p 268
*Diagnostic Value of Bone-Marrow Biopsy in Malaria Caused by Plasmodium Falciparum T J Zacharias—p 297
*Histology of Lesions Caused by Sting of Hive-Bee (Apis Mellifica) W Crewe and R M Gordon—p 341
Chloroquine, Proguanil Mepacrine and Quinine in Treatment of Malaria Caused by Plasmodium Falciparum R P C Handfield Jones—p 345

Bone Marrow Biopsy Not Justified in Falciparum Malaria—Zacharias compared the concentration of parasites in the peripheral blood and sternal marrow of 41 patients with malaria due to Plasmodium falciparum and in 61 cases in which after preliminary observation, the diagnosis of malaria remained unproved. He found that in acute malaria due to this organism the parasite concentration in the peripheral blood exceeds that in the sternal marrow by a small but significant amount. Consequently, in the diagnosis of acute falciparum malaria sternal puncture is not a justifiable procedure. Its interpretation is difficult and time consuming, and the information obtained is not commensurate with the effort involved.

Lesions Caused by Sting of Bee (Apis Mellifica)—According to Crewe and Gordon the sting of the bee may affect the recipient in one of three ways as a result of the poison injected from the poison glands, as a result of bacteria being introduced with the sting or later gaining access to the tissues through the wound caused by the sting or as a result of allergic reactions in persons who have become sensitized to bee venom or to the pollen carried by the bee. The authors made experiments on guinea pigs which were kept in the laboratory so that there was no possibility of their having previously been sensitized to bee venom, nor did examination of the tissues reveal evidence of sepsis. Histologic studies were made on the local lesions resulting from a bee sting one hour, twenty-four hours and forty-eight hours after its infliction. The lesions produced included edema, cellular infiltration and muscle necrosis, these changes being followed by a walling-off of the damaged tissue by a palisade of inflammatory cells. These lesions are in contrast to the complete absence of inflammation following the uncomplicated bites of certain blood-sucking insects (mosquitoes, tsetse flies and Chrysops) previously studied.

British Journal of Urology, London

21 269-384 (Dec) 1949 Partial Index

- Classification of Epithelial Tumours of Bladder C E Dukes and T Masina—p 273
Antibiotics in Urology M E Florey—p 296
Testicular Tumours Late Results of Radical Surgery A W Adams—p 329
Function in Hydronephrotic Kidney A I L Maitland—p 334
Some Observations on Bladder Neck Obstruction H P Winsbury White—p 342
Investigation of Subfertility in the Male W S Tulloch—p 350
*Preliminary Communication on Intracavitary Irradiation of Bladder Mucosa by Radioactive Isotope Solution D M Wallace R J Walton and W K Sinclair—p 357

Radioactive Isotope Solution for Intracavitary Irradiation of Bladder—Wallace and associates call attention to the fact that the small, multiple, sessile lesions arising from an abnormal mucosa and involving a considerable area of the bladder wall present a difficult therapeutic problem. A short-lived radioactive isotope would present certain advantages over other forms of therapy, particularly with regard to safety, ease of introduction and duration of treatment. Radioactive sodium (Na^{24}) has been used for this purpose at the Royal Cancer Hospital. In order to protect the staff, the technic of introducing the solution into the patient is based on remote control. During the early treatments the staff received a dose of about 0.4 r, but this has since been cut down to an average of 0.01 r and should be even less in the future. Everybody connected with the treatment carries an ionization chamber while in

proximity to the active solution in order to measure the radiation received. The insertion of the catheter is relatively simple in females. In males however, it has been found to be impossible to introduce the catheter through the intact urethra. Consequently, the catheter has been introduced through a perineal urethrotomy, using a curved, grooved sound and a gorget. The filling apparatus is mounted on a stand and surrounded with lead bricks for the protection of the operator. It consists of a 200 cc flask with a two way tap at the top and at the bottom. The upper tap can be used to connect the flask to a water pump (suction) or to a hand-operated rubber bulb (pressure). The catheter is emptied of air and water as completely as possible. The radioactive solution is sucked into the central flask from its container, and then delivered into the catheter by applying pressure. Unless the bladder is either unusually capacious or, as a result of infection or previous treatment, unduly contracted, it is customary to use 150 cc of radioactive solution. The bag is filled slowly over a period of ten minutes in order to obviate the pain which is sometimes caused by bladder spasm. The radioactive solution is colored a deep green as a means of identification in the apparatus or in the event of leakage. Urine draining from the catheter is examined at regular intervals to detect radioactivity. At the completion of treatment the radioactive solution is removed from the patient by suction. The exact quantity must be extracted. There were 10 patients treated within the last three months. All of the lesions have shown some regression.

British Medical Journal, London

1 81-138 (Jan 14) 1950

- Bearing of Recent Work on Virus Theory of Cancer C H Andrewes—p 81
Age of Puberty in Tropics R W B Ellis—p 85
Pathology of Hypersensitivity Reactions in Man H Bergstrand—p 89
Structure and Functions of Synovial Membrane D V Davies—p 92
Birth Weight and Subsequent Weight R S Illingworth—p 96
Comparison and Estimate of Group and Individual Methods of Treatment A S Thorley and N Craske—p 97
Primary Torsion of Omentum in Children A B MacLean—p 100
Stomach of Recently Deceased A W Williams—p 102
Diphtheria Immunization with P T A P in Adults T M Vogt—p 104

1 139-202 (Jan 21) 1950

- *Thymectomy in Myasthenia Gravis H R Viets—p 139
Proguanil Resistant Falciparum Malaria in Malaya J F B Edeson and J W Field—p 147
Hirschsprung's Disease in Infancy E D Burnard—p 151
Future of Occupational Health D Stewart—p 156
Prognosis in Disseminated Sclerosis M Reinhold—p 160
Gynaecomastia and Testicular Aplasia D Ferriman—p 162
Brachial Plexus Block Report of 350 Cases S V Humphries—p 163
Ankylosing Spondylitis Treated by Osteotomy of Spine F W Stuart and G K. Rose—p 165

Thymectomy in Myasthenia Gravis—Viets states that, among the 36 patients subjected to thymectomy at the Massachusetts General Hospital since 1941, 7 had thymomas and 29 showed various degrees of involution and formation of germinal centers in the thymic tissue. Three of the 7 patients with thymoma are living; one has survived six years. Two are greatly improved by the operation and their condition is classed as excellent, one is considered fair. All but 4 of the 29 patients in the non-neoplastic series have survived. The results are classified as excellent in 3, good to excellent in 2, good in 5, fair to good in 2, fair in 2, poor to fair in 2 and poor in 2, in 7 sufficient time had not elapsed to estimate results. Patients should be treated orally with neostigmine for an adequate length of time before operation and their course should be steady. Neostigmine may be given intravenously during thymectomy. Approximately 0.5 mg of neostigmine methylsulfate given intravenously is equivalent in effect to 15 mg of neostigmine bromide by mouth. Thymomas in general are benign tumors but they may expand locally. Implants at the time of operation are possible. The significance of germinal center formation in the thymus is not clear. The presence of a large number of germinal centers is highly suggestive of myasthenia gravis. Results of thymectomy in the last nine years justify the continuation of the operation in patients with myasthenia gravis. The operative mortality should be zero, or close to it, if patients are carefully selected and adequately treated.

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Journal of Clinical Pathology, London

2 161-240 (Aug) 1949

- Serum Proteins Review J R Marrack and H Hoch—p 161
 Serum Copper Levels in Pregnancy and in Pre Eclampsia R H S Thompson and D Watson—p 193
 Latent Carcinoma of Prostate G S Andrews—p 197
 Use of Pancreatic Extract as Growth Stimulant for *C. Diphtheriae* M Gordon and K Zinnemann—p 209
 Errors in Estimation of Streptomycin in Serum D A Mitchison, H D Holt and S H Moore—p 213
 Studies In Vitro on Maturation of Erythroblasts in Normal and Pathological Conditions G Astaldi and P Tolentino—p 217
 Dextran as Medium for Demonstration of Incomplete Anti Rh Agglutinins (Preliminary Report) R Grubb—p 223
 Haemolytic Anaemia M Gatman and L Hamilton—p 225

Latent Carcinoma of Prostate—Andrews reports a microscopic study of 142 prostates removed at necropsy from males between the ages of 15 and 79 in whom the diagnosis of carcinoma of the prostate had not been made clinically or on gross examination at necropsy. Step sections from each prostate, at roughly 4 mm intervals through the gland, were examined. Carcinoma was observed in 17 (12 per cent) of the 142 prostates examined. It was not observed in prostates from subjects under the age of 40. The tumors were all adenocarcinomas which varied in histologic appearance but had certain features in common. In the main they were formed by small acini, which were usually composed of cubical cells. The malignant cells were definitely larger than those of the senile acini and were comparable in size to those of the small acini in benign hypertrophy, however, they differed from these in their irregular shape and irregular laminal border. Corpora amylacea were never seen in the carcinomatous areas. The basal layer of epithelial cells was never present, and the altered relationship to the stroma was most striking. The stroma propria was absent, and the malignant acini had grown into the supporting stroma, separating the muscle fibers and in many cases actually rupturing them. Six tumors contained, in addition to the small acini, larger acini which showed intra-acinar proliferation of cells with a tendency to form small acini within the main acinus. Perineural lymphatic invasion was present in 15 of the 17 prostates with carcinoma, and in 5 it was extensive. Latent carcinoma was observed most commonly beneath the capsule in the posterior lobe in men aged 60 or more. It was occasionally multifocal in origin. Benign hypertrophy and latent carcinoma of the prostate were associated in 16 of the 17 prostates with carcinoma. The observation of a distinctive hyperplasia, frequently in the posterior lobe, which may undergo a malignant change and is common to both benign hypertrophy and carcinoma, provides a closer link between the two conditions.

Lancet, London

1 145-190 (Jan) 1950

- Treatment of Leprosy with Diamino Diphenyl Sulphone by Mouth J Lowe—p 145
 Observations on Chloramphenicol J D Gray—p 150
 Effect of Deoxycortone and Ascorbic Acid on Formaldehyde Induced Arthritis in Normal and Adrenalectomised Rats G Brownlee—p 157
 Removal of Forceps from Abdominal Cavity F T Ranson and M Blumenfeld—p 159
 X-Ray Cinematography in Congenital Heart Disease R Janker—p 160

Observations on Chloramphenicol—Gray describes a trial with chloramphenicol that was made in two groups of children with pertussis in the first two weeks of the disease and in the third or fourth week. In both groups alternate patients were given the drug or a placebo. The cases were too few for definite conclusions to be drawn, but satisfactory oral dosage schedules were worked out. Owing to the persistent bitter taste of chloramphenicol, administration by mouth to children aged 1 to 3 years presents difficulties. Rectal administration was tried, with suppositories and with pierced gelatin capsules, but proved ineffective. When chloramphenicol treatment is considered essential for children of this age, the drug may be given by stomach tube. In 1 child an urticarial reaction developed after she received a single dose of chloramphenicol. Since she could not have had access to the drug before, it is supposed that her sensitivity was due to massive bacterial death. Among the treated children given massive dosage, those who were old enough to notice visual symptoms had a peculiar internal ophthal-

moplegia characterized by rapid fatigue of accommodation on reading, with recovery after a short rest. This was thought to be a peripheral effect. Experiments in adults confirmed the existence of this side action. Weight-holding tests showed that chloramphenicol hastens the onset of fatigue in skeletal muscles. Serial postnasal swabs showed that the drug completely sterilizes the mucous surfaces of the upper part of the respiratory tract. The sterility lasts two to three days after the last dose, but it can be maintained indefinitely by continuing administration. This property may prove of great value in surgery, especially if the sterilization is found to extend into the lungs.

1 191-238 (Feb 4) 1950

- Iron and Steel Industry C Swanston—p 191
 Control of Whooping Cough in Nurseries G E Breen, B Benjamin and A Beck—p 198
 Infantile Pyloric Stenosis Review of 100 Cases Treated by Ramstedt's Operation J N Ward McQuaid and B E Porritt—p 201
 Relief of Pain in Rheumatoid Arthritis with Tetraethylammonium Bromide T H Howell—p 204
 Bilateral Rupture of Extensor Tendons of Knee A Fowler and G P Mitchell—p 205
 Flora of 100 Bronchial Secretions with Particular Reference to Anaerobic Cocci J G Benstead—p 206
 Estimation of Urinary Neutral 17 Ketosteroids Rapid Polarographic Method W R Butt—p 208
 Clinical Observations with Deoxycortone and Ascorbic Acid D Le Vay and G E Loxton—p 209

Tetraethylammonium Bromide in Rheumatoid Arthritis—A favorable effect following the intramuscular injection of 5 cc of solution of tetraethylammonium bromide in a man with rheumatoid arthritis of his hands induced Howell to try this treatment in 3 men and 23 women. Only 1 patient with signs suggesting an active rheumatoid arthritis has not gained relief from this treatment. In 7 cases which did not seem to be active there was no response. Three patients showed no response after the first administration of the drug, but had freedom from pain after the second and third injections. Sixteen patients claimed either considerable relief or complete absence of pain for a time after administration. One patient had 9 successive good responses. The duration of freedom from pain varied from five days to seven months. The effect of tetraethylammonium bromide is usually felt within an hour or less, but in some cases the onset of relief has been delayed. In the cases in which tetraethylammonium bromide was not effective the pain originated in the circumarticular tissues and not in the joint. Some patients with massive fibrositis in addition to their rheumatoid arthritis state that their "soft tissue" pain is made worse by tetraethylammonium bromide, even when the joints are relieved. Patients with osteoarthritis do not seem to benefit.

Deoxycortone and Ascorbic Acid—Le Vay and Loxton say that since Lewin and Wassen reported their results with combined injections of deoxycortone acetate and ascorbic acid in rheumatoid arthritis, they have made observations in 80 cases of rheumatoid polyarthritis and also in monarticular varieties of this disease, in ankylosing spondylitis and in osteoarthritis. Originally 5 mg of deoxycortone acetate in peanut oil was given intramuscularly, followed within five minutes by 1 Gm of ascorbic acid given intravenously (technic A). Later a single dose intravenous technic was used, with an aqueous solution of 5 mg of deoxycortone glucoside mixed in the syringe with the ascorbic acid (technic B). More recently the authors have been trying the effect of a single intramuscular dose of the oily deoxycortone and the aqueous ascorbic acid, mixed in and given with one syringe (technic C). As a result of the injection there is partial or complete disappearance of pain and spasm, increased speed, ease and range of joint movement, and a variable sense of exhilaration. The duration of the response varies from a few hours to several days but is rarely as long as a week. The results are better in the monarticular form of rheumatoid arthritis than in the polyarticular form. The action is nonspecific, inasmuch as active cases of ankylosing spondylitis and gonococcal arthritis respond in the same way. Osteoarthritis is not affected except in certain circumstances. The authors also cite cases of fracture and sprains in which the described treatment reduced the pain and increased ease and range of joint movements. They believe that deoxycortone and ascorbic acid act peripherally and not through the agency of the adrenals or other internal organs.

Practitioner, London

164 1-96 (Jan) 1950 Partial Index

- The Premature Infant. R W B Ellis—p 5
General Management of the Newborn G A Neligan—p 13
Jaundice and Anaemia in the Newborn D MacCarthy—p 19
Respiratory Infections of the Newborn H E Jones—p 28
Gastro Enteritis in First Month of Life G Ormiston—p 35

Acta Chirurgica Belgica, Brussels

48 521-596 (Nov) 1949 Partial Index

- Subvaterian Stenosis of Duodenum by Ulcer Segmentary Resection of Duodenum Gastroduodenostomy Case with Recovery Surgical Considerations E. Delannoix and C Auguste—p 521
Roentgenologic and Manometric Examination of Biliary Tract in Surgery A van Wien J J Desneux and J Van Geertruyden—p 527
Use of Nylon Tissue in Cure of So-Called Inoperable Eventrations A. J. Michaux—p 564

Nylon Tissue in Cure of Inoperable Eventrations—Michaux used nylon tissue for the repair of the abdominal wall in 13 cases of primary or postoperative eventrations varying from 8 to 24 cm in patients with a pronounced deficiency of aponeuroses and muscles. Five patients were in perfect health nine, eight, seven, and six months after the operation. Two patients had a mild suppuration about the sixth postoperative day, which subsided spontaneously within ten days. The suppuration was of longer duration in 2 other patients, but it did not jeopardize the procedure. The results obtained with nylon tissue in "inoperable" cases of eventration, i.e. in patients in whom the muscular and aponeurotic tissues bordering the rupture cannot be made to unite are encouraging because the nylon tissue is well tolerated and because it is easily applied. Occasionally it may not even be necessary to fix the prosthesis in place by sutures. Several nylon tissue prostheses may be used simultaneously.

Acta Paediatrica, Stockholm

37 195-358 (No 3-4) 1949 Partial Index

- Penicillin Treatment of Carriers of Diphtheria Bacilli G Öberg—p 204
Prophylactic and Early Treatment of Infections in Newborn Infants Especially the Premature G Muhl—p 221
Airborne Infections IV Control of Dustborne Streptococcal Infections in Children's Wards G Laurell—p 237
Tuberculosis in BCG Vaccinated Children O Wasz Hôckert—p 261
Dermatomyositis in Children H Sunde—p 287
Significance of Chvostek's Symptom in Infants Under Two Years of Age K. L. Möller and B. Söderling—p 318
Parahemophilia Hitherto Unknown Hemorrhagic Disease E Stransky and D F Davis Lawas—p 323
Foreign Bodies in Esophagus with Symptoms Exclusively from Air Passages H F Fabritius—p 335

Penicillin Treatment of Carriers of Diphtheria Bacilli—Öberg reports on 98 carriers of diphtheria bacilli who did not have clinical diphtheria or who had the actual illness at least six weeks previously. Eighty-seven were carriers of bacilli of the mitis type, 1 of the intermediate type and 10 of the gravis type. Fifty-one had virulent bacilli at the time of the institution of the treatment. Ninety-five carriers were given intramuscular injections of penicillin in varying doses. Eighty thousand to 200 000 units four times every twenty-four hours seems to be a suitable dose for adults. Treatment should be continued for a sufficient length of time so that at least three negative cultures in succession (taken every third day) may be obtained before treatment is discontinued. Positive cultures may appear some time after discontinuation of the treatment. At least four and in some instances five negative cultures in succession, taken every third day, should be obtained after treatment with penicillin before the patients may be discharged. Forty-two of 48 carriers with positive throat cultures and 19 of 50 carriers with positive nose cultures became free of bacilli. There seemed to be no difference in the treatment of carriers with virulent or nonvirulent bacilli. Penicillin aerosol treatment with inhalation of 10 000 units during a ten minute period three times daily was given a trial in 4 carriers. Two of these carriers were freed of the bacilli. This result is encouraging, since the carriers had shown resistance to treatment. The resistance was likely connected with chronic, atrophic rhinopharyngitis.

Nederlandsch Tijdschrift v Geneeskunde, Amsterdam

93 4077-4144 (Dec 3) 1949 Partial Index

- Risks and Sequels of Fenestration Operation L. B. W. Jongkees.—p 4078
Feltz's Syndrome G. A. Lindeboom—p 4085
*Manipulations on Carotid Arteries as First Aid for Intracranial Hemorrhages Due to Trauma W. R. H. Kraenbourg—p 4093

Manipulation of Carotid Arteries in First Aid for Cranial Trauma—Kraenbourg is concerned with the arrest of intracranial hemorrhages caused by contusions, which are a frequent occurrence in motor vehicle accidents. The prognosis in intracranial hemorrhage is in many cases largely dependent on the first aid received. Care should be taken that the injured person is kept as quiet and warm as possible, that the head is turned to the side and that stimulants are withheld. The manipulations described are concerned with the external carotid or the common carotid artery. Compression of the external carotid artery prevents further inflow of blood into the middle meningeal and other meningeal arteries of the same side. If the bleeding is cerebral, either arterial or venous, this manipulation is inadequate and pressure must be exerted on the common carotid artery. If this pressure is to be effective the thumb must be placed on the neck artery and the bent thumb must be pressed downward along the neck and head so that the thumb does not slide sideward. The author stresses that the manipulations must be carried out during the "latent interval" the time before the first symptoms appear, immediately after the accident. The pressure might be exerted by the patient himself or by the person giving first aid.

Nordisk Medicin, Stockholm

43 1-54 (Jan 6) 1950 Partial Index

- Aureomycin and Chloramphenicol A. R. Frisk—p 1
*Myth of Chromophobe Adenomas Preliminary Report N. Antoni—p 6
*Aureomycin and Primary Atypical Pneumonia R. Grelland—p 10
Penicillin and Pneumonia. K. Motzfeldt—p 12
Effect of Tetraethylammonium Bromide on Gastric Motility B. C. Christensen H. Skott and R. Bjerglund—p 13
Coxa Saltans (Snapping Hip) G. W. Wallgren—p 18
Injection of Contrast Medium in Colon by Use of Weber's Balloon T. Rasmussen—p 20

Myth of Chromophobe Adenomas Preliminary Report—In his examination of 10 so called chromophobe adenomas, 2 is necropsy material, 8 as operative material, Antoni found that 8 were gliomas corresponding most nearly to the Cushing-Bailey ependymomas. He is inclined to believe that the majority of suprasellar tumors connected with the hypophysis or its stalk, which have hitherto been considered chromophobe adenomas are gliomas, particularly ependymomas originating from the neurohypophysis or the hypophysial stalk. The assumption, if correct, affords a natural explanation of several obscure points regarding these tumors. Far oftener than do other hypophysial tumors they develop out of the sella turcica and spread in the suprasellar region with the hypophysial stalk as a preformed pathway. Conceivably many of the tumors originate in the hypophysial stalk with primary suprasellar development, and only secondarily penetrate into the sella turcica. Far oftener than do eosinophil tumors they exert pressure on the optic chiasm and the tuber cinereum tract causing defects in vision but slight or no enlargement or other roentgenologic changes in the sella turcica and no frontal niche. Hypopituitarism appears in only part of the cases, perhaps because of the difference in the size and topography of the tumors. Tumors developing from the neurohypophysis and hypophysial stalk were practically unknown.

Aureomycin and Primary Atypical Pneumonia—Grelland says that primary atypical pneumonia is characterized by acute bronchiolitis and interstitial pneumonia. The leukocyte count is low or normal at the start of the disorder, later there may be considerable leukocytosis and in a number of cases eosinophilia. The frequency of positive cold agglutination has varied in different epidemics. In serious infections the patient may be confined for weeks with irregular fever, troublesome headache and cough and affected general condition. Recently it has been noted that severe pneumonias not infrequently lead to bronchiectasis and pulmonary fibrosis. Treatment with penicillin and sulfadiazine does not result in clinical or objective

improvement in uncomplicated cases. Aureomycin is an effective means of treatment of the disease. In 4 of the 5 cases reported, 3 of them severe, the cold agglutination titer was 256 or more. Treatment of the patients with penicillin and sulfonamide drugs before admission was without effect. After three days' treatment with aureomycin hydrochloride, $\frac{1}{2}$ Gm every six hours, all the patients were afebrile and recovery was rapid. Aureomycin treatment was equally effective in 6 severe additional cases with agglutination titers over 256.

Prensa Médica Argentina, Buenos Aires

36 2497-2554 (Dec 2) 1949 Partial Index

*So Called Lower Nephron Nephrosis F Moran Miranda—p 2523

Lower Nephron Nephrosis—According to Moran Miranda oliguria or anuria following traumatic shock is due to renal anoxia from ischemia, hypotension and hemoconcentration of shock. The syndrome develops in a functional and an organic phase. The organic phase consists in the persistence or aggravation of oliguria on the first day after the control of shock and the later appearance of isosthenuria, aciduria, albuminuria and cylindruria. In some cases moderate arterial hypertension appears on the third day. It is of great diagnostic value. There appear vomiting, thirst, hyperazotemia, dehydration, delirium and uremia. Uremic coma takes place within six or ten days after the onset of the disease. If the syndrome follows a favorable course, diuresis and elimination of catabolic substances increase and the urinary symptoms slowly regress for several months, with or without a recurrence. The syndrome is reversible with total recovery of function and anatomic restitution of the organic lesions. The preventive treatment of the organic phase is based on the prevention of renal ischemia with early control of shock by means of whole blood transfusions, and intravenous infusions of plasma, albumin, sodium chloride and dextrose solutions, or of a solution containing sodium chloride, sodium lactate and phosphates of calcium and potassium (Hartmann's solution). Persistence or aggravation of oliguria or anuria, after control of shock, calls for (1) intravenous administration of sodium chloride solution, dextrose solution and sodium bicarbonate solution up to normalization of chlorides in the blood plasma and alkalinity of the blood. The quantity of liquids to be given is controlled by the increase or decrease of body weight. A daily dose of 185 Gm of sodium bicarbonate is given by mouth until normalization of alkalinity of the urine is obtained. The patient is given a low protein diet. Renal decapsulation is indicated as an emergency measure. Recovery is slow, difficult and often complicated by a transient recurrence.

Schweizerische medizinische Wochenschrift, Basel

79 1255-1278 (Dec 31) 1949 Partial Index

Pathogenesis and Therapy of Nonanemic and Slightly Anemic Iron Deficiency States B Jasinski—p 1255

Determination of Grain Size of Silicogenous Dust. H Gessner, J R Rüttner and H Bühler—p 1258

Nature of Injurious Effects of Cold H Kilian—p 1262

*Spindle Cell Sarcoma of Kidney Sixteen Years After Pyelography with Thorotrast H U Zollinger—p 1266

Chloramphenicol (Chloromycetin) in Treatment of Paratyphoid B 2 Cases A Weintraub—p 1268

Sarcoma of Kidney Sixteen Years after Pyelography—

Zollinger describes the case of a man who sixteen years previously, at the age of 48, had been subjected to retrograde pyelography with colloidal thorium dioxide. The pyelogram had revealed a hydronephrosis. A nephrectomy on the left side was recommended, but the patient refused it. During the intervening years the patient had had symptoms on the left side. In August 1949 he was again hospitalized. Pyelography again showed hydronephrosis and a shadow in the renal pelvis. Exploratory operation revealed a greatly enlarged kidney, the upper pole of which was adherent to the diaphragm. The renal pelvis was greatly enlarged and in its upper part grayish red tumor fragments were found. The tumors were connected with massive deposits of thorium dioxide. Histologic studies revealed a spindle cell sarcoma of the renal pelvis. When thorium dioxide was first introduced as a contrast medium for hepatolienography, arteriography and pyelography, several authors and the Council

on Pharmacy and Chemistry of the American Medical Association warned of possible late complications, because of the radioactive character of the thorium. That these warnings were justified is proved by this case and a number of others. The author advises against the use of colloidal thorium dioxide as a contrast medium and believes that kidneys containing depots of thorium dioxide should be removed because of the danger of malignant lesions.

80 1-24 (Jan 7) 1950 Partial Index

Types of Hemagglutinins in Infectious Mononucleosis and Serum Sickness J Tomcsik and H Schwarzeiss—p 1

*Pituitary Adrenocorticotrophic Hormone Thorn Test and Therapeutic Action in Chronic Inflammatory Polyarthritis R S Mach and Y Brügger, R Della Santa and J Fabre—p 5

Diagnostic Significance of Plasmocytosis in Blood and Bone Marrow G Giraud and P Cazal—p 12

Role of Sympathetic Nervous System in Vasomotor Action of Nikethamide E Frommel and I T Beck—p 13

Active Venous Hypertension L Condorelli—p 14

Pituitary Adrenocorticotrophic Hormone in Chronic Inflammatory Polyarthritis—Mach and co-workers verified Thorn's test by injecting 25 mg of pituitary adrenocorticotrophic hormone (ACTH) in 7 normal subjects by the intramuscular route. The injection caused a pronounced fall of 80 to 100 per cent in circulating eosinophils and a rise in the urinary uric acid-creatinine ratio of 50 to 200 per cent. The fall in circulating eosinophils after the same injection was insignificant (0 to 40 per cent) in 5 patients with Addison's disease, and their urinary uric acid-creatinine ratio was increased by only 15 per cent. A single intramuscular injection of 25 mg of pituitary adrenocorticotrophic hormone was given to 12 patients with chronic inflammatory polyarthritis. It caused in 10 patients the same fall in circulating eosinophils as it did in the normal persons, but there was no rise in the urinary uric acid-creatinine ratio in the usual proportions. Subjective and objective improvement lasting for approximately forty-eight hours was produced in these 10 patients. The fact that the hormonal agent produces a fall in circulating eosinophils and at the same time a rapid clinical improvement indicates that the adrenal cortex is not the seat of the endocrine deficiency, if such a deficiency is present in chronic inflammatory polyarthritis. The seat of this deficiency may be in the hypophysis or the diencephalon. Two of the 12 patients with chronic inflammatory polyarthritis did not show any clinical improvement after the injection of pituitary adrenocorticotrophic hormone, and they did not have any fall in circulating eosinophils. Prolonged treatment with daily injections of the drug was practiced on 2 patients with chronic inflammatory polyarthritis. For the first week the daily dose was 25 mg, and after that the daily maintenance dose was 625 mg. Complete change of the clinical state, the patient being able to walk without pain and having improvement of the blood sedimentation rate, resulted from this treatment and continued for many weeks after the discontinuation of therapy.

Zeitschrift für Kinderheilkunde, Heidelberg

67 137-260 (Oct 24) 1949 Partial Index

Methionine Its Physiologic and Clinical Significance K Schreier—p 137

Protective Inoculation Against and Course of Scarlet Fever F Küster and M Haase—p 173

Adrenal Function Tests in Children F Souchon—p 179

*Amino Acid Supplement in Feeding of Premature Infants H Henckel—p 221

Amino Acid Supplement in Feeding of Premature Infants—Henckel investigated the efficacy of the addition of a protein hydrolysate to the feedings given to 43 prematurely born infants. The infants weighed between 1,000 and 2,500 Gm. The protein hydrolysate contains all essential and some other amino acids in about the same proportion as they occur in the blood proteins. About 10 per cent phosphates are added for more effective buffering. The preparation is miscible with breast milk, 1 per cent of the preparation being generally added to the milk. It was found that, when weight curves obtained during feeding with this preparation were compared with those during periods when other preparations were given, the aforementioned protein hydrolysate proved definitely superior.

Book Notices

THE REVIEWS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES AND DO NOT REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED

The Diabetic Handbook How to Work with Your Doctor Treatment by Diet and Insulin By Anthony M. Slindoni Jr. M.D. Chief of the Department of Metabolism Philadelphia General Hospital Introduction by Rufus S. Reeves B.S. M.D. Director of the Department of Public Health Philadelphia With a Foreword by Charles C. Wolferth A.B. M.D. Professor of Medicine School of Medicine University of Pennsylvania Philadelphia Cloth \$3 Pp 194 with 7 illustrations The Ronald Press Company 15 E 26th St New York 10 1948

Writing a primer for diabetic patients if it is to be well done is not as simple as one might believe. It must be kept in mind that the majority of diabetics come to the physician at the age of 40 to 60, when the troubled patient is no longer in the mood for learning things that are strange or new. This calls for the simplest possible mode of expression consistent with the facts. This handbook meets that situation with the quiz method in section 1. How much of the field one covers and how much detail one can transmit in that fashion depend on the selection and arrangement of the questions.

The background, clinical history and manifestations of diabetes and complications are briefly and clearly stated and the author avoids speaking over the head of the patient. How much to say and what not to say to the patient in a book for this purpose depend on good judgment. The food section is well arranged, and its contents are easily accessible. Special mention should be made of the selection of recipes and their food values, which patients find helpful in many ways. This book can be recommended to patients without reserve.

Willen und Schaffen Lebenserinnerungen aus einer Wendezeit der Heilkunde 1868 1932. [Bd I.] Von Erich Hoffmann. Half Cloth Pp 403 with 2 illustrations. Schmorl & von Seefeld Nachf. Verlagsbuchhandlung Hannover 1948.

Ringen um Vollendung Lebenserinnerungen aus einer Wendezeit der Heilkunde 1933 1946. [Bd II.] Von Erich Hoffmann. Half Cloth 12 marks Pp 309. Schmorl & von Seefeld Nachf. Verlagsbuchhandlung Georgstrasse 4a (20a) Hannover 1949.

These two volumes are an autobiography extending from 1868 to the present; they constitute, therefore, an unusual panorama of history in general as well as of medical developments in particular delineated by a writer whose education, gifts and contacts were extraordinarily broad. Highlights in the first volume are the description of his work with Fritz Schaudinn that led to the demonstration of the *Treponema pallidum* as the causative organism of syphilis and the account of his first visit to the United States. The second volume contains further instructive details of scientific investigations, a delightful account of a second visit to the United States and a gripping portrayal of the confusion that preceded and the horrors that followed the outbreak of World War II. The book will give pleasure to many American readers because of its friendly portrayal of characters well known in dermatology today, but, in addition, it must be recognized as the expression of a great personality and a priceless contribution to the history of dermatology and chemotherapy.

How to Befriend Laboratory Animals By Charles W. Hume. Paper 3d. Pp 16. UFAW (Universities Federation for Animal Welfare) 284 Regent's Park Road Finchley London N 3 1949.

This excellent pamphlet discusses the origin of vivisection among the French scientists and veterinarians and gives the historical background of the cruelty to animals act (1876). He further indicates that the act in Britain was amended in 1906 by a bill called the Dogs Act which prohibits in Britain the use of stray dogs for vivisection, but the effect of that law is that dogs must be bought from dealers and the resulting high prices tempt thieves to deprive dogs of their homes. One effect of this legislation is indicated by the fact that no antivivisection bill has ever reached second reading in either house since 1881. This pamphlet should be read by all who are told by the antivivisectionists that experimentation on dogs is not allowed in Great Britain.

Functional Human Anatomy An Introduction into the Fabric of the Human Body By Cleveland S. Simkins A.B. Ph.D. Professor of Anatomy Creighton School of Medicine Omaha Nebraska Cloth \$12. Pp 593 with 238 illustrations Wm. C. Brown Company 915 Main St Dubuque Iowa 1949.

There seems to be a widespread feeling in medical circles that the teaching of gross anatomy is no longer adequate for the needs of medical students. Efforts are being made in several medical schools to integrate the teaching of gross anatomy with other sciences and with clinical and biologic fields. One of the serious obstacles to modernization of the subject has been the persistence of textbooks which do not differ basically from editions dating back a half-century or more. It would seem that the time has come for the appearance of more bona fide textbooks of anatomy, in contrast with the present massive books (and their spawn dissecting manuals) which students are commonly required to wade through and which may be characterized more properly as reference books.

The present book is one example, and a very good one, of the directions that the teaching of anatomy is beginning to take. It is lucid and dynamic and deals frequently with morphogenetic, physiologic and pathologic aspects of human anatomy. It consists of an introduction and six other sections (upper extremity, head and neck, thorax, abdomen, pelvis and lower extremity). A large part of each section is devoted to more general aspects and remaining portions to more detailed descriptions of smaller units and their function and relations. While the space devoted to the extremities is still too great, it is gratifying to see that the discussion of the thorax and abdomen with their great importance for medical practitioners and biologists is relatively greater than in most textbooks. It is hoped that in future editions further integration might be made with microscopic anatomy and the principles of comparative anatomy, that the number of simple line drawings will be increased and that more references will be cited. The small type script is not too legible. There are a number of instances where revision of the text would lead to a clearer and shorter exposition. The book is deserving of a wide trial, and these suggestions need not deter students or teachers from the use of what is a commendable effort to revise the teaching of anatomy to meet present needs of students.

The Physiology of Thought A Functional Study of the Human Mind in Action By Harold Bailey M.D. F.A.C.S. Cloth \$3.75 Pp 314. The William Frederick Press 313 W 35th St New York 1 1949.

The author of this book informs the reader in the preface that "when we" the "we" apparently referring to the person of the author began to study thought, it never occurred to us that the subject could become as comprehensive as our investigations have shown it to be. Again the author states, "In so far as possible we shall limit the text to a consideration of our own ideas and we shall devote little space to discussion of views expressed by other writers. The program is largely lived up to for the reader would in vain look for such names as Sechenov, Pavlov, Hughlings Jackson or Walter B. Cannon. The reader however will be disappointed if he should attempt to discover a 'theory'. Rather, he will find definitions and not an attempt to explain the *modus operandi* of such phenomena as sleep, dreams, consciousness, instinct and perversion.

Among some of the conclusions arrived at by the author are "We have been unable to attach any value or significance to dreams save as an indication of the depth and degree of unconsciousness present." Pavlov's theory of retardation and inhibition is not mentioned and Freud's interpretation is dismissed in three lines. According to the author, "The influence of thought on our emotions will largely depend upon the nature of the subject about which we are thinking. We regard emotions as physical reactions or disturbances which result from an imbalance of thought." The subject of emotion is dismissed as follows: "The adverse influence of emotion upon the health of the individual needs but to be recognized in order to be avoided."

Popularization of so complicated and difficult a subject as physiology of thought constitutes a difficult problem even for one who has worked in this field and has mastered the subject. For others it is an overwhelming project.

Extrapleural Pneumolyse By Knud Buhl With an English Summary Denne afhandling er af det lægevidenskabelige Fakultet ved Københavns Universitet antaget til offentlig at forsvares for den medicinske Doktorgrad, 1948 Paper Pp 202 with 31 illustrations Rosenkilde & Bagger, Copenhagen, 1948

The author surveys the literature concerning apicolysis, with and without thoracoplasty and with reference to the material (air, oil, paraffin) used in the space created at operation. He then reviews the 351 operations on 321 patients mostly performed by Gravesen at Vejlebjerg Sanatorium and a few by Rischel at Avnstrup Sanatorium. Results are decisively influenced by the extent and severity of the disease, classified as (1) unilateral or early bilateral, (2) bilateral moderate, (3) bilateral advanced (in these 3 without attempt to collapse the other side) and (4) bilateral cavernous, in which collapse was present or attempted on the other side. Most patients were followed for at least three years.

In 87 plombage operations, 60 per cent of the patients in class 1 and 6 per cent in the remaining classes recovered. There were a number of severe operative and postoperative complications. Thoracoplasty with apicolysis without maintenance of the pneumolysis space was performed in 151. Late recovery occurred in 51 per cent in classes 1 and 2 and in 20 per cent in classes 3 and 4. Complications were few. In 36 cases of extrapleural pneumolysis in which it was planned that the space be maintained at first with pneumothorax and then by oleothorax, in 23 a permanent oleothorax collapse was achieved. Among the oleothorax cases 67 per cent of the patients in classes 1 and 2 recovered and 18 per cent in classes 3 and 4. Results are better when the apicolysis is combined with apical thoracoplasty. In this group of 59 cases permanent extrafascial oleothorax was obtained in 40 cases. Recovery occurred in 64 per cent of classes 1 and 2 and in 42 per cent in classes 3 and 4. Complications were less frequent when the pneumolysis operation was combined with apical thoracoplasty. Thoracoplasty with apicolysis gives no better results than simple thoracoplasty. Results with apical thoracoplasty combined with extrafascial oleothorax are encouraging.

Précis de parasitologie Par E. Brumpt Vols I et II. Sixth edition. Cloth 7700 francs Pp 1042, 1045-2138 with 1312 illustrations. Masson et Cie, 120 Boulevard Saint Germain, Paris VI^e, 1949.

A relatively long time in modern medical history has elapsed since the fifth edition of this justly renowned book was published, in 1936. Within that period parasitology has been broadened and deepened in fundamental and applied knowledge, particularly in its assimilation of biochemistry, physiology, experimental pharmacology and immunology. Thus, any new textbook on parasitology or a new edition is expected to reflect these many advances.

Those who are familiar with the earlier editions understand how thoroughly the entire subject was covered, frequently to the smallest detail. This edition is truly encyclopedic in breadth and minutiae. As in the fifth edition, so in this one, volume I presents in orderly sequence, first, an introduction covering the general phenomena of parasitism (87 pages), followed by a section on the protozoa (485 pages), in which are included the pathogenic spirochetes as well as amebas, flagellates, sporozoans and ciliates. The remainder of this volume (467 pages) is devoted to the flatworms (trematodes and tapeworms) and the roundworms. Volume II opens with a short chapter on leeches, followed by the arthropods and the diseases which they transmit (549 pages), then a section entitled "Systematic Study of the Parasitic Fungi and the Mycoses" (422 pages) and an addendum (24 pages) containing a digest of the more important information published between 1946 and early 1949. A good subject index and a table of contents conclude the work.

The detail and care which the author has exercised in presenting his material, including an almost exhaustive description of many species of parasites which have only remote or incidental relationship to human disease, are impressive. Yet one must remember that this book is not intended as a treatise exclusively devoted to human parasitology. In considering the

text from the viewpoint of the medical parasitologist, the mycologist and the pathologist, one finds the classification of causative agents for the most part satisfactory, and the coverage is excellent up to about 1940, with less abundant information from that year until the date of publication. From the point of view of the physician, the material on symptomatology is relatively complete, and in most instances modern diagnostic techniques are adequately described. Consideration of chemotherapy is deficient in that several modern drugs are not included, those which are listed are not critically evaluated, and too frequently the dangers and contraindications of the more toxic drugs are not mentioned. The public health aspects of parasitic diseases are well presented with reference to geographic distribution and epidemiology, but less satisfactorily as regards control. The volumes are beautifully printed on an excellent quality of paper, are abundantly illustrated with good photographs and detailed drawings and are substantially bound.

Resuscitation and Anesthesia for Wounded Men. The Management of Traumatic Shock By Henry K. Beecher A.M. M.D. Henry I. Dorr Professor of Research in Anesthesia Harvard University, Boston. Cloth. \$5.50 Pp 161 with 28 illustrations. Charles C. Thomas, Publisher 301 327 E. Lawrence Ave., Springfield, Ill., 1949.

This small volume, with its excellent format, consists of a compilation of 10 published articles written by the author during his period as consultant in resuscitation and anesthesia in the Mediterranean Theater of Operations during the last World War. Emphasis is placed on the patient's care during the critical period between the time the enemy's missile strikes until the surgeon repairs the wound. Although the background of this book is wholly military, the fundamental principles involved are the same as those that apply to the care of traumatic injuries in civil practice.

This book is divided into four sections which deal with the mental and physical state of wounded men, physiologic derangements in the wounded found on forward hospital admission, treatment of wounded men, and anesthesia for the wounded. A comprehensive index is included. Differences in the care of the wounded during World War I and World War II are revealed, as well as improvements in medical management during various years of the last World War. Valuable discussions deal with the role of pain in the wounded man and appraisal of the patient's condition, including degree of shock.

The section on physiologic derangements in the wounded contains a most important summary of studies on the effects of various types and locations of wounds on blood loss, degree of shock, hematocrit and plasma protein levels, nonprotein nitrogen blood level and other chemical changes. Adequate evidence is presented to show that the internal state of wounded persons undergoes profound alterations. Of particular importance in the section dealing with treatment of wounded men is the discussion dealing with the use of morphine, especially the hazard of delayed morphine poisoning. This latter factor must be given greater emphasis in medical school and hospital instruction, as well as in civilian medical practice.

Organization and management of field, battalion and stations, collecting company, clearing station and shock wards, in relation to the treatment of wounds, fluid and blood replacement, oxygen therapy and artificial respiration, are all discussed in a concise manner. The section dealing with anesthesia for the wounded consists of only 18 pages and emphasizes that the anesthetic agents and techniques necessarily employed in the combat zone are much more limited than in civilian hospital practice. The preparation of patients for anesthesia and characteristics of the various anesthetic agents are discussed. Regional block usually had little usage because of the frequent multiplicity of wounds in a given person. The limitations of thiopental sodium in the treatment of the wounded are clearly defined, and later experience on this basis was shown by the author to have greatly reduced the anesthetic death rate from this drug. Physicians, particularly surgeons and anesthesiologists, who deal with the care of the wounded will find this small volume valuable.

Electron Microscopy Technique and Applications By Ralph W G Wyckoff Cloth \$5 Pp 248 with 202 illustrations Interscience Publishers Inc 215 Fourth Ave New York 3 Interscience Publishers Ltd 2a Southampton Row London WC1 1949

This book is essentially an electron microscopist's *trade mecum* written by a master craftsman in the fine art of electron microscopy. Its primary preoccupation is with instrumentation, technical procedure and the myriad areas of application which have already emerged in this teen-aged craft of the visualization of ultramicroscopic structure. The illustrations are rich, varied and technically superb, they are undoubtedly the finest collection of pictures that have thus far been published to exhibit the applications of electron microscopy. The book is a highly individualized account of the wide experience of the author and his laboratory. As such it has the freshness and authenticity of personal experience, it suffers for the same reason from the limitations of the author's personal preferences and from inadequate assimilation and presentation of the work of other investigators of the biophysics and biochemistry of ultrastructure.

Successive chapters describe electron microscopes themselves adjustment and operation, preparative procedures for (a) particle suspensions, (b) thin sections, (c) membranes and surface films, (d) surface replicas, (e) positive replicas and (f) atomic replicas, metal shadowing and the visualization of very small objects, the use of surface replicas, the electron microscopy of particle suspensions, including bacteria and rickettsiae, the electron microscopy of viruses, the photography of macromolecules, and the structure of macromolecular solids. The bibliography is comprehensive and is organized under topics so as to be readily usable.

Dr Wyckoff is primarily a crystallographer and secondarily a biophysicist in the field of microbiology. As might be expected, therefore, the chapters dealing with viruses and macromolecules and the structure of macromolecular arrays are among those on applications, of greatest value.

Those who are familiar with the extensive literature on the biochemistry and genetics of bacteriophage reproduction will find somewhat naive the author's conclusions, drawn with cavalier disregard of the literature and out of harmony with well documented results of other investigators. An example of what may be limitation by personal preference is the fact that not a single electron micrograph of an unshadowed preparation is to be found in the book. Dr Wyckoff is one of the originators of the technic of shadowing which has contributed enormously to electron microscopy and is shown in the present volume to be capable of contributing substantially in light microscopy as well. Where fine gradation of contrast in internal structure is desired, however, as in studying the internal organization of bacteria or the details within thin sections metal shadowing may obscure more detail than it reveals. Those interested in exploration of the fine-scale physical constitution of living matter, and of nonliving matter as well, will find Dr Wyckoff's book exciting and challenging reading with a wide outlook to the future.

Essays on Sex By Henry McClure Young M.D. Edited by Maud H. Young Cloth \$5 Pp 277 with 1 illustration The Christopher Publishing House 1140 Columbus Ave Boston 20 1949

These essays were written over a quarter of a century for physicians reading *Urological and Cutaneous Review*. They are not dated, and they bear little relation to each other. It is a book for physicians and of little value to the general reader wanting information concerning the subject matter. Physicians remembering the distinguished author will find it interesting, other persons will find it an expensive book not suited for general reading along the lines indicated by the title.

Goethe and Pharmacy By George Urdang Ph.D. D.Sc. Nat. Sc.D. Paper Price \$2.50 Pp 76 with 22 illustrations American Institute of the History of Pharmacy Inc. Pharmaceutical Library Chemistry Building Madison 6 Wis 1949

The author has presented an interesting historical review of Goethe's intimate contacts with pharmacists of his locale. While it is true that Goethe concerned himself with the problem of directing men's minds toward the elevation of their practices it is equally clear that his elementary knowledge of the action of drugs and chemicals was enhanced by these contacts.

Congenital Anomalies of the Heart and Great Vessels. Clinicopathologic Study of 132 Cases. By Thomas J Dry and others. Publication No 47 American Lecture Series A Monograph in American Lectures in Pathology edited by Paul R Cannon M.D. Professor of Pathology University of Chicago School of Medicine Chicago Ill. Cloth \$4.50 Pp 68 with 80 illustrations [Postgraduate Medicine 512 Essex Bldg Minneapolis 2 1948] Reproduced with permission by Charles C Thomas Publisher 301 327 E Lawrence Ave Springfield Ill [1949]

This modest volume is a clinicopathologic correlation of sixteen distinct congenital anomalies of the heart and great vessels based on a study of 132 necropsies at the Mayo Clinic. The format is attractive, the quality of the paper good and the colored reproductions of heart models excellent. The roentgenograms, photographs of autopsy material and electrocardiograms are also well reproduced. The portraits included in this book of eminent pioneers in the field of congenital heart disease impart a delightful flavor of continuity with the past.

Unfortunately, several anomalies of importance are not included. These include anomalies of the great veins (e.g., persistent left superior vena cava, aberrant pulmonary veins), isolated pulmonary stenosis, subaortic stenosis and aberrant coronary arteries. In all but 1 case only roentgenograms in the posteroanterior view are shown. The importance of the left anterior oblique view especially in the diagnosis of rudimentary right ventricle, is not mentioned. The value of cardiac fluoroscopy is implied but not emphasized. The authors perpetuate the "sin" of assigning to the pulmonary conus a place on the cardiac silhouette, although it has been demonstrated repeatedly by angiocardiology that, under normal and abnormal conditions, the conus remains intracardiac and does not make up the heart border.

Information available from catheterization is only lightly touched on, thus deficiency is not compensated for in the list of references. Angiocardiography as a diagnostic tool is not mentioned in the text. The value of the electrocardiogram is sharply limited as a diagnostic and correlative tool because exploration has been confined largely to the standard limb leads. This book will provide a pleasant pictorial experience for those whose interest in congenital heart disease is casual or will serve as a graphic supplement to more extensive works concerned with this field.

Secretory Mechanism of the Digestive Glands By B. P. Babkin M.D. D.Sc. LL.D. Second edition Cloth \$20 Pp 1027 with 233 illustrations Paul B Hoeber Inc Medical Book Department of Harper & Brothers 49 E 33d St New York 16 1950

The first edition of this book, which appeared in 1944, has been warmly received and extensively used by physiologists and clinical investigators whose principal field of interest is the secretory activities of the digestive glands. Until its appearance the standard reference work in this field had been Babkin's earlier cyclopedic work 'Die Aussere Sekretion der Verdauungsdrüsen' (Berlin Julius Springer, 1928). Unlike this earlier German work Babkin has not claimed for the present volume completeness of coverage of the literature. Instead he has attempted to present systematically the products of the research of his own laboratories, using literature references to the work of others only to supply the necessary background. Despite this professed modest aim, the book is, in fact, a complete survey of the literature on the subjects of salivary, gastric and pancreatic secretion and is much depended on for this purpose because no other modern book covers these subjects in the exhaustive manner required by the researcher. Intestinal and biliary secretion are only touched. The pathologic physiology of gastrointestinal disease is given only cursory attention. Babkin writes lucidly and one finds oneself browsing in the book beyond the subject originally being looked up.

This new edition adds some 260 bibliographic references bringing the total to nearly 2,000. It would appear that in some instances the new material has been tacked on without adequate integration with the old. This adds to the impression of discursiveness which one sometimes got in reading certain sections of the first edition. As in the first edition, the type is large and clear and complete author and subject indexes are provided adding greatly to the usefulness of a book of this kind. Unfortunately, the high cost of the book will prevent it from coming into the hands of many graduate students who should own it.

Manuel de radiodiagnostic clinique Par R Ledoux-Lebard Chargé de Cours de radiologie clinique à la Faculté de médecine de Paris, et Guy-R Ledoux-Lebard Second édition Cloth 5500 francs Pp 1407, with 2000 illustrations Masson et C^{ie}, 120 Boulevard Saint-Germain Paris VI^e, 1949

The senior author, Rene Ledoux-Lebard, died in 1948. Probably no French radiologist has been more popular with American colleagues. The senior Beclere was always most gracious and hospitable, but he did not speak English easily as did Rene Ledoux-Lebard. Rene gave the Caldwell Lecture on high voltage roentgen therapy at the 1922 meeting of the American Roentgen Ray Society. During the First World War he was a great help in the adaptation of American radiologists to the customs, available apparatus and methods of locating foreign bodies.

The field of diagnostic roentgenology is covered. Much of this edition has been rewritten, and there are far more illustrations than in the first edition, published five years ago. There is no similar single volume work on diagnostic roentgenology in the English language, and only Schinz of Switzerland has approached it in the German language. Ross Golden's "System of Roentgenology," in two volumes with many authors, is the best product in the English language and compares well with this volume. The wealth of illustrations and the anatomic and pathologic sketches serve to confirm the diagnostic interpretations, particularly in bronchial and genitourinary examinations with opaque mediums and the chapters on cardiology and arteriography. Rene Ledoux-Lebard was always the perfectionist, and this fine volume, in which have been included every old and new phase of roentgen diagnosis, offers many examples of his attention to detail. The Ledoux-Lebards, the late Rene and his son, Guy, are to be complimented on this fine exposition of modern French diagnostic roentgenology.

Diseases of Women By Ten Teachers under the Direction of Clifford White M.D., B.S., F.R.C.P. Edited by Clifford White, Frank Cook and Sir William Gilliatt. Eighth edition. Cloth \$5.25. Pp 461 with 170 illustrations. The Williams & Wilkins Company. Mt Royal & Guilford Aves. Baltimore 2, 1949.

The list of contributors to this compact book is noteworthy, but that has been so from its inception, under the guidance of the late Sir Comyns Berkeley. That the opinions of ten authorities on overlapping subjects could be condensed into 461 pages without undue repetition or noticeable lack of unanimity demonstrates the editorial efficiency of Clifford White. There is continuity throughout the 44 chapters, each section an important monographic contribution, that is remarkable considering the multiple authorship.

The book is thoroughly up to date in thought and precept, although it is noticeable that penicillin is the most recent antibiotic prescribed. Also, nonabsorbable iodized oil is recommended exclusively for hysterosalpingography, whereas in this country absorbable opaque mediums are being more and more preferred. There seems to be rather too great a determination that obstetrics shall be no part of gynecology, although constant reference is made to pregnancy as a complicating factor in various gynecologic conditions. Ectopic pregnancy is given an entire chapter.

The book is essentially one for diagnosis and for reference. Every conceivable gynecologic condition seems to be referred to and discussed, concisely but thoroughly. Treatment is outlined, but techniques of operative procedures with illustrations are subordinated to no more than 40 pages. In general the illustrations are excellent. The book is to be recommended to students, to general practitioners and to specialists in obstetrics-gynecology as an excellent and definitely authoritative reference work.

A Descriptive Atlas of Radiographs. An Aid to Modern Clinical Methods. By A. P. Bertwistle M.B. Ch.B. F.R.C.S. Ed. Seventh edition. Cloth \$16. Pp 622 with 980 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1949.

Despite the dedication of this edition to the Right Honorable Winston Churchill, O.M., and the addition of brief sections on helminthology and occupational diseases, this work remains a mediocre and not reliable collection of radiographic reproductions. Many of these reproductions are confused by the outlining of the "silhouette" of the part under examination. Inasmuch

as the reproductions themselves are mostly positives, this merely adds confusion.

There are chapters on normal bones, anomalies, fractures, diseases of bones, tumors of bone and injuries and diseases of joints. The alimentary, urinary, respiratory, nervous and vascular systems are dealt with. The work is essentially an attempt at an atlas of radiograms. There is an interesting supplement in the form of an attempted history of radiographic diagnosis culled by the author from portions of "The Archives of the Roentgen Ray" and "The Year Book of Radiology." This section has been particularly poorly prepared or proofread. Misspelled surnames abound (for example, Hadek for Haudek, Rugler for Rigler), as do misspelled technical terms (ventriloquy appears three times, atelectasis more than once).

The author has some gross misstatements, which should be corrected. For example, on page 15, "Ewing's tumor which is so radiosensitive that operation is uncalled for." On page 16, "spondylitis adolesans, an affection of the sacroiliac joint amenable to x-ray therapy." He refers to Milkman's syndrome as a rarefying osteitis usually found in women at or beyond the menopause, Milkman referred to it as spontaneous idiopathic symmetric fractures. In the history of the development of radiology of the alimentary tract, he fails to mention Cole's important contributions to duodenal ulcer between 1913 and 1914. Many of the illustrations are made from old roentgenograms. The book may therefore have some historic interest. However, it cannot be recommended as a modern textbook.

Your Child's Mind and Body. A Practical Guide for Parents. By Flanders Dunbar, M.D. Cloth Price, \$2.95. Pp 324. Random House Inc. 457 Madison Ave. New York 22, Random House of Canada Ltd. Toronto. 1949.

This book keeps the promise of its subtitle so well that it can be recommended without reservation by practicing physicians to all who ask for advice about their children. It has a conversational tone and is written in the language of the layman. This book answers all the questions which parents might ask, simultaneously explains the behavior of children and gives sound advice. This volume contains nine chapters, each of which is carefully summarized, and all the important statements are printed in italics. From this it may be seen that the book is truly written for the benefit of the reader and that it is so organized that the answers to specific questions are easily accessible. The volume is enhanced by a table of reference by age, a bibliography and a 26 page index. The eminent author has done her best in this volume, both from the point of view of her scientific knowledge of dynamic psychology and her success as a parent. Her book is destined to remain as a classic in the field of parent-child relationships.

Dental Roentgenology. By LeRoy M. Ennis D.D.S. Professor of Roentgenology in the Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania. Fourth edition. Cloth \$10. Pp 538, with 1207 illustrations. Lea & Febiger, 600 S. Washington Sq. Philadelphia 6, 1949.

This book is essentially for the dentist and technician. Little clinical dentistry is discussed. It is full of reproductions of dental films and the discussion of apparent disease is profuse. There is just a two page item on osteoradionecrosis with quotations from two 1938 articles and the tumor pages are limited to the benign conditions. There is not any mention of cancer or focal infection even in the index. Physicians who take their own dental films will find this book useful.

Medisinske Fremskritt. Redigeret af Leliv Kreyberg, Erik Warburg, Helge B. Wulff, S. Feigenberg [Medical Progress]. Paper Pp 422 with illustrations. J. H. Schultz Forlag, Niels Juelsgade 10, Copenhagen K. C. W. K. Gleerups Forlag, Lund. H. Aschehoug & Co., Oslo. 1949.

This is an excellent review and summary of recent advances in medicine, from isotopes and cancer to chest surgery and psychiatry. Twenty-six specialists present the reviews of that number of important topics. Each chapter lists the important recent literature in its field. The book is prepared for the medical student and the general practitioner. As such it is a further indication of the high level of medical education and medical service in these Scandinavian countries.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

OXYGEN AND ALCOHOLIC INTOXICATION

To the Editor—Is oxygen inhalation effective in counteracting acute alcoholic intoxication? F W Kinard MD S C

ANSWER—The rationale of oxygen therapy in the treatment of acute alcoholic intoxication is the observation that anoxia simulates alcoholic intoxication. Probably the most dramatic symptoms of intoxication occur in aviators at high altitudes. Many a flier has felt that altitude had no effect on him while observers using oxygen noted obvious euphoria, irresponsibility, incoordination and, finally, unconsciousness. McFarland and Barach (*Am J M Sc* 192 186, 1936) reported that the 'inhalation of 50 per cent oxygen with an increased percentage of carbon dioxide for two hours lowered the alcohol and lactic acid contents of venous blood in subjects who had ingested a known amount of alcohol per kilogram of body weight, this was accompanied with a corresponding improvement in mental and motor behavior.' Robinson and Selesnick (*J A M A* 105 1734 [Nov 30] 1935) reported a sharp reduction of alcoholic concentration in venous blood after the inhalation of 90 per cent oxygen with 10 per cent carbon dioxide for half an hour. David and Robertson (*Quart J Stud on Alcohol* 10 59, 1949) in a study of 100 cases report striking improvement of symptoms of acute alcoholic intoxication not hitherto experienced with other methods of treatment.

ABANDON DINITROPHENOL AS REDUCING AGENT

To the Editor—What new research has been done with alpha dinitrophenol in the treatment of obesity? Is it still thought to be a causative factor in cataract formation? MD Michigan

ANSWER—Dinitrophenol has been abandoned for use in weight reduction and for any other medicinal purpose. The Federal Food and Drug Administration announced several years ago that in its opinion interstate shipments of dinitrophenol intended for medicinal purposes would violate the dangerous drug provisions of the Federal Food, Drug and Cosmetic Acts. Many states have outlawed the sale of dinitrophenol for medicinal purposes.

Robbins (*J Pharmacol & Exper Therap* 80 264, 1944 82 301, 1944) successfully produced experimental cataracts in chickens by administering dinitrophenol. Horner (*Arch Opth* 27 1097, 1942) reviewed the evidence regarding cataract production in the human. There seems to be no doubt about the relationship between dinitrophenol administration and cataract formation. There are no pharmaceutical preparations of dinitrophenol available, and its use in any form for the treatment of obesity or any other condition is dangerous and wholly unwarranted.

POSSIBLE PSEUDOECTOTHRIX

To the Editor—Are there any records of cases of fungous infection of the scalp other than ringworm of textbook description? My co workers and I have been consulted by an adult woman with small lesions and marked loss of hair which have baffled the clinicians and laboratory. We have repeatedly failed to obtain a growth on Sabouraud's medium at room temperature yet the microscopic picture cannot be ignored. There is no resemblance to either endothrix or ectothrix as usually encountered with hydroxide wet mounts. There appear to be filaments of a sort wrapped around the hair beginning at the root and extending some distance up the shaft. There seems to be branching which gives a 'briar-stitch' or crisscross effect where the filaments are present.

MD Virginia

ANSWER—The condition might be an example of pseudo-ectothrix described by Knowles and his co workers (*Arch Dermat & Syph* 31 38 [Jan] 1945). Knowles and his colleagues called attention to threadlike filaments that were wrapped around hairs taken from scalps affected with inflammatory diseases. They were not fungi nor was their character clearly established. The authors suggested that they were of the nature of an intercellular exudate thrown out by the internal epithelial sheath as a result of the inflammatory process. Most of their examples were from lesions of neurodermatitis, but it was implied that similar filaments might be observed as a result of other inflammatory diseases.

PREOPERATIVE TESTS OF HEPATIC FUNCTION

To the Editor—Best and Taylor in *Physiological Basis of Medical Practice* (Williams & Wilkins Company 1945 page 470) cite observations by McMaster and Rous and by Mann and associates relative to the reserve function of the liver. The first group showed that in the dog 95 per cent of the excretory function could be abolished before jaundice appeared. The second group found that liver tissue of the dog could be reduced by 80 per cent or more without occurrence of a fall in urea production. Would these findings hold in principle for humans? If so what is the value of preoperative tests of hepatic function in any patient other than one with extensive liver damage?

O C Amstutz MD Bellefontaine Ohio

ANSWER—The results of tests of hepatic function in healthy animals the livers of which have been partially extirpated are not to be compared with the results of similar tests in patients in whom the hepatic disease is diffuse. In experimental animals the liver remaining after partial extirpation is presumed to be normal in function, while in the patient with diffuse hepatic disease it is probable that all the hepatic cells are involved in some degree. Results of liver biopsy in patients with hepatic disease emphasize the difficulty in correlation of histologic alterations, results of tests of hepatic function and signs and symptoms of disease. It is known that certain patients with advanced hepatic cirrhosis in whom considerable regeneration of hepatic parenchyma has occurred, may have normal or almost normal results of many tests of function. In contrast other patients with chronic hepatitis may have readily demonstrable impairment of hepatic function (particularly as manifested by abnormal retention of sulfobromophthalein sodium in the blood) in the presence of little apparent histologic alteration except mild periportal cellular infiltration. The need for other techniques of staining cells and better tests of function is apparent. However, even though it is difficult to correlate the amount of hepatic damage and the results of tests of function, it is appropriate and important to determine hepatic function preoperatively in any patient suspected of having hepatic disease. Cantarow (*Arch Int Med* 54 540, 1934) emphasized the value of preoperative determination of the amount of retention of sulfobromophthalein sodium in the blood of nonjaundiced patients with calculous and noncalculous cholecystitis. He pointed out that the dysfunction manifested by abnormal retention of dye in such patients is often readily corrected by proper preoperative care with ultimate benefit to the patient.

LARGE DOSES OF VITAMIN A

To the Editor—1 Could a daily intake of 300,000 units of vitamin A by an adolescent or young adult for six months or more be harmful? 2 What is the toxic dose? MD New York

ANSWER—1 A daily intake of 300,000 international units of vitamin A by an adolescent or young adult male for six months or more would probably not be harmful.

2 Acute intoxication by vitamin A is suggested by the report of Rodahl and Moore (*The Vitamin A Content and Toxicity of Bear and Seal Liver, Biochem J* 37 166, 1943). Eskimos have long known that the ingestion of polar bear liver may cause severe illness. The first signs occur in two to four hours sometimes later—drowsiness, sluggishness, severe headache and vomiting. In twenty-four hours the skin about the mouth begins to peel off; there may be loss in other areas or occasionally over the entire body. Recovery usually occurs. Rodahl and Moore found that the toxic polar bear livers contained from 13,000 to 18,000 international units of vitamin A per gram and in experiments with the white rat that vitamin A was the sole toxic agent in the livers. They estimated that the quantity of vitamin A in 375 Gm of liver (the amount ingested) was about 7,500,000 units.

Chronic intoxication by vitamin A in children was first reported by Josephs (*Hypervitaminosis and Carotenemia, Am J Dis Child* 67 33 1944). A boy had received from the age of 2 or 3 months 1 teaspoonful or more of halibut liver oil daily—at least 240,000 international units of vitamin A. By 18 months his appetite failed; at 28 months the liver and spleen were enlarged; the fingers were clubbed and the hair was dry, coarse and falling. Roentgenograms showed an irregular cortex in phalanges and metacarpals, vacuolated medullary cavities, mottled epiphyses at the upper end of the humeri and tibiae and advanced bone age. The serum vitamin A was greatly elevated. After the discontinuance of halibut liver oil improvement was immediate. In two months the appetite improved, weight increased and hair began to grow. At 30 months the liver and spleen were still enlarged and the fingers were clubbed. Josephs reports observation on 3 other children who ingested from 120,000 to 500,000 international units of

vitamin A daily for several weeks to four months, who had no symptoms. The levels of serum vitamin A were not greatly elevated.

The observations of Josephs and of Toomey and Morissette (*Hypervitaminosis A*, *Am J Dis Child* 73 473, 1947) appear to show that infants may tolerate daily doses of about 240,000 international units of vitamin A for a year or more without the development of symptoms and that they may not tolerate daily doses of 500,000 international units of vitamin A for even short periods of time. On the basis of body weight, this would indicate that the toxic daily dose of vitamin A for an adult would lie between 1,500,000 to 3,000,000 units daily.

CORONARY THROMBOSIS

To the Editor—A patient was treated for coronary thrombosis. He was kept at rest for a long time and has been advised to exercise moderately all this year. He went to a heart specialist in another city, who said there was no evidence of his ever having had coronary occlusion. He went to another city and had another heart specialist examine him. This heart specialist said there was no trouble at this time and doubted that there ever had been a coronary occlusion, however, after looking at the electrocardiogram which the first internal medicine specialist had made, he said that he felt there was some evidence on the electrocardiogram that there had been a coronary occlusion. This left the patient confused, so he went to still another heart specialist, who stated that there was no evidence of coronary occlusion and there never had been. His "attack" occurred in February 1949. 1. Does a normal electrocardiogram at this time preclude any possibility of there ever having been a coronary occlusion? 2. If an electrocardiogram taken at this time shows no evidence of there ever having been a coronary occlusion, can he safely assume that he is completely out of danger and forget that he may ever have had heart trouble? Each of these so-called heart specialists has a good reputation in his own locality. Karlton H Kemp, M D, Texarkana, Ark.

ANSWER—A normal electrocardiogram does not preclude the possibility of there having been coronary occlusion in the past. This is not an unusual occurrence. It is necessary, therefore, to have adequate information, preferably by direct comparison of the electrocardiograms in the past at the time of the episode that might have been thought to have been coronary occlusion with the newer record before definite conclusions are made. Second, if there is no other evidence of heart disease and the present electrocardiogram is normal, a fairly good prognosis may be given even though coronary occlusion may have occurred in the past. This prognosis, however, cannot be given without qualifications, for recurrence of coronary heart disease is common. One should in this instance follow the middle line of common sense measures, periodic examinations (probably once a year would suffice), careful review of family history and possibly studies of metabolic nature, including content of cholesterol in the blood.

TYPHOID VACCINATION

To the Editor—Please comment on the so-called rapid method of vaccination against typhoid. This consists of increasing vaccine doses each day for three days. It appears to have been used recently in threatened epidemics. M D, Texas.

ANSWER—Naumer and Nerb (*Reactions and Agglutinin Responses to Various Methods of Typhoid Immunization*, *Arch Pediat* 60 63 [Feb] 1943) reported on what may be termed a rapid method of typhoid vaccination. This consisted of injecting four doses of vaccine intracutaneously. The inoculations were 0.1, 0.2, 0.3 and 0.4 cc given every other day, the total amount of vaccine for one immunization was 1 cc. After the injection of vaccine intradermally agglutinins appeared in the serum within one week, reached their peak at three weeks and then gradually diminished so that by six months the titer was low. These results were practically the same as those after immunization by the customary subcutaneous route, moreover, unpleasant reactions occurred less often. Results were poor with the oral method of administering vaccine.

CHLORAMPHENICOL AND PARATYPHOID

To the Editor—Are there reported cases of paratyphoid treated with chloramphenicol? Robert S. Srigley, M D, Hollis, Okla.

ANSWER—To date there are no reports printed on chloramphenicol in the treatment of paratyphoid. In general the results obtained in treatment of infections produced by *Salmonella* organisms, other than infection with *Salmonella typhosa*, have not been satisfactory, when either chloramphenicol or aureomycin have been used.

MULTIPLE SEBACEOUS CYSTS OF THE NECK

To the Editor—I would like information concerning the treatment of sebaceous cysts by means of an electric current. Would it be practical to consider this form of treatment for multiple acne cysts of the back of the neck? A man, age 21, is in excellent physical condition and has no skin blemish other than many small to nickel-sized cysts on the back of the neck. Acute infection in one or more of these cysts occurs frequently. Irradiation, 75 r, three doses, at weekly intervals has been of no benefit. Treatment has been provided by many physicians over a two year period. The cysts remain. Rarer causes of granulomatous lesions have been excluded by biopsy. Excision is impractical, because of the large number of cysts, but may be necessary, or incision and curettage may be done for some. I would like an evaluation of the methods of handling this case. M D, California.

ANSWER—The "electric current" treatment for sebaceous cysts was advocated by Danna in the *New Orleans Medical and Surgical Journal* for July 1945. Using a regular diathermy machine, he employed the unipolar desiccating current for small sebaceous cysts and the bipolar current for larger lesions. The needle is inserted into the cyst cavity, and the current is then applied in an amount sufficient to produce a white eschar around the needle. It is said that in this way there results less of a scar than from surgical excision. Many physicians advocate this method, but equally as many, if not more, physicians consider it less satisfactory than surgical removal, particularly with respect to scar formation.

Some physicians advocate this method for the treatment of cystic acne lesions also, but experience with it for these is still limited. Such lesions usually are treated by a combination of methods, including irradiation, the administration of antibiotics, dietary regulation, cryotherapy with solid carbon dioxide, proper cleansing, the application of exfoliating and astringent lotions, surgical incisions with restraint, hormonal therapy, supportive measures and treatment directed against specific abnormalities, as anemia or constipation. All these methods are used singly, concurrently or interchangeably over a long period of time, and the final results usually are rewarding.

PREVENTION OF BRUCELLOSIS

To the Editor—A patient of mine bought a milk cow, and his children have been drinking the milk for several weeks. The cow has been found to have an active *Bacillus abortus* infection. What can be done to protect the children against developing undulant fever? Is there an effective vaccine which can be used for prevention or treatment, and, if so, is it too late now to use it? Ray S. Wycoff, M D, Lexington, Neb.

ANSWER—There is no prophylactic vaccine that will reliably prevent infection of persons exposed to brucellosis. Since milk cows usually excrete *Brucella* into the milk in aperiodic showers, the ingested milk from one infected cow is more likely to cause disease than the same milk diluted by other milk from a herd. Heating the milk to near the boiling point and then rapidly cooling it, or some form of local pasteurization should be instituted regardless of the present state of health of the children, provided the cow is to remain as the source of milk supply. Since there is no known way to prevent brucellosis after consumption of infected milk, efforts should be directed toward recognition of early signs and symptoms of the disease, and base line agglutination tests and brucellergen (1:20,000) tests performed at once, with repetition of the agglutination tests only, and the performance of blood cultures or marrow cultures on the appearance of symptoms that are compatible with this infection in children.

MIXING ANTIGENS FOR HYPODERMIC INJECTION

To the Editor—Would it be possible to combine pollens, epidermals and house dust in a single hypodermic injection in desensitizing an allergic patient without any harm? H. L. Lockner, M D, Chatsworth, Ill.

ANSWER—It is not clear whether mixing of the antigens in the vial in a definite proportion is meant or mixing of them in the syringe at the time of the injections. It is not possible to carry out rational desensitization therapy by mixing in a vial seasonal and nonseasonal antigens or even seasonal antigens pertaining to different seasons. In pollen therapy it is the aim to administer the maximum dose prior to the season, while during the season the dose is usually reduced. A mixture in which the proportions of the individual extracts must be fixed does not permit the necessary adjustments. Mixing the extracts in the syringe at the time of injection has the advantage over the fixed mixture because the proportions can be varied. On the other hand, it is generally inadvisable to mix in the same syringe dissimilar extracts. One is thus unable to gage the

dose of the individual materials, since the local reaction is one of the guides for such dose determination. In case of a constitutional reaction it would not be possible to tell which extract is responsible for it and requires reduction in size. Furthermore, injecting several potent antigens in the same site may result in unnecessarily large local reactions. One could mix (in the syringe) the epidermal and house dust extracts for injection into one arm and inject the pollen extract separately into the other arm.

INTERCOURSE WITHOUT SENSATION

To the Editor—A man aged 22 who has been married fifteen months complains that he experiences no sensation while having intercourse. He has a normal vigorous erection and is able to effect penetration. He gives no history of venereal disease. The presence of a urethral discharge at any time is denied. He is well developed. The penis is of average size. The testicles are normal and well descended. A complete neurologic examination did not reveal anything suggestive of disease. Rectal examination disclosed an apparently normal prostate with no tenderness. The result of a Mazzini test was negative. The urine is normal. Examination of seminal fluid revealed a volume of 3.1 cc., pH 7.5 and 106,200,000 cells per cubic centimeter. Spermatozoa were present and actively motile in about 85 per cent of the total specimen. About 5 per cent of the total spermatozoa consisted of heads without tails, pinheads and curled tails at 37°C. Motility was still present at the end of one hour in 85 per cent of the total. What else can be done?

Francis V Itri MD Brooklyn

ANSWER—The pertinent investigations in this problem indicate no evidence of structural disease. The ability to obtain and maintain an erection and to effect normal intercourse excludes the possibility of structural disease of the central nervous system, particularly in the absence of abnormal findings on routine examination. There is presumably no perianal or genital sensory disturbance and no bladder or bowel symptoms. In these circumstances further investigation of the genitourinary functions is unnecessary. This patient should be seen by a psychiatrist and further investigations directed toward an understanding of his personality and emotional structure.

ILEOJEJUNITIS

To the Editor—A boy age 16 has regional enteritis and a painful intestinal spasm about every third night. The pain requires meperidine hydrochloride and chloroform for relief. A well known clinic was unable to make a diagnosis. He was operated on elsewhere and about 20 feet (6.1 M) of intestine was found to be pink, the mesenteric glands were enlarged and some were caseous. No gut was removed. The boy has excellent color and appearance and normal weight and digestion. The colicky pains have been present for five months.

Pierre Redman MD Mena Ark

ANSWER—Apparently the entire ileum and jejunum are involved in this boy. The length of the entire small intestine is about 13 feet (3.96 M). The description of "20 feet of intestine" is to be interpreted as a diffuse ileojejunitis. The mesenteric glands in ileojejunitis are never caseous. Caseation arouses suspicion of intestinal tuberculosis. The boy should be tested for possible tuberculosis. Roentgenograms of the chest should be studied. Treatment should include deep injections of crude liver extract and vitamin B complex, 2 cc. of each every other day, high protein diet, much sunshine and physical rest. Codeine should be used for the pain. There is nothing to be expected from further surgical intervention. The prognosis is fair. About 25 per cent of such patients recover completely with conservative therapy.

CHEST ROENTGENOGRAMS DURING PREGNANCY

To the Editor—If roentgenograms of the chest are to be done routinely in all prenatal cases at what time during pregnancy should they be taken?

R S Marino MD Bristol Conn

ANSWER—Chest roentgenograms should be taken routinely during early pregnancy unless the patient has been examined just prior to pregnancy, which is preferable. There is little or no danger to the growing embryo at any stage from so small a dose of roentgen rays. If one is concerned about this point, the roentgenogram may be taken at two to two and one half months pregnancy, at which time the fetus is well developed and it is still early enough to plan for abortion if the observations warrant it. Abortion by curettage is not recommended after three months. If the patient is seen late in pregnancy the roentgenogram is still of value to one in deciding limitations of activity or other therapy. Not to be forgotten in chest roentgenograms are the cardiac as well as chest conditions. An enlarged heart or a peculiarly shaped heart shadow may be the first signs of congenital heart defects or even decompensation.

LOSS OF SENSATION IN HANDS

To the Editor—A 70 year old farmer who has never been seriously ill complains of loss of sensation numbness burning stinging and pain of the fingers of both hands particularly the left. There is a weakness of both hands the grip of the left being extremely weak. The palm of the left hand is somewhat tender on pressure and thicker than on the right. None of the fingers can be straightened without pain and the joints are enlarged. There is severe atrophy of the right thenar eminence which is the major clinical finding with the exception of missing tactile sensation of varying degree in the finger tips approaching normal sensation as one progresses toward the wrist. The patient states: Below the wrists I am all wrong above the wrists I am okay. He has burned and cut himself severely several times because of his loss of sensation. Please advise.

MD New York

ANSWER—The loss of sensation plus the weakness and atrophy of the muscles of both hands progressing slowly would indicate some disturbance in the spinal cord at the level of the sixth, seventh and eighth cervical segments. The lesion must be extensive to cause such changes, and it is unusual for a lesion at this level not to be expansive enough to cause pressure on the lateral columns with secondary spasticity of the legs, increased deep reflexes and Babinski sign. There is nothing in the history to indicate the condition of the patient's legs which would be an important factor if the disease is in the spinal cord and not peripheral. If one considers moreover, the peripheral aspects as a possibility, the lesion must be a complicated one below the level of the wrist, for there is decided weakness, atrophy and loss of sensation. Missing from the record also is any description of the reflexes in the arms which would help localize the process. In favor of a local lesion in the hands is the enlargement of the joints with pain on extension of the fingers. The burns on the hand without sensation are suggestive of syringomyelia with the lesion again at the level of the spinal cord indicated previously.

A definite diagnosis cannot be made in a case of this type without data consisting of results of a more complete neurologic examination, giving the condition of the reflexes in the arms and the legs, an examination of the cerebrospinal fluid and a roentgenogram of the lower cervical spine. It is possible that there would be found sufficient spondylitis in the cervical region to account for local pressure on nerve roots and, secondarily on the changes found in the hands. There is some indication that the root most involved would be the sixth cervical root on the right, but the lesion is more extensive than that and is also bilateral. Spinal cord tumor is also a possibility, and if any indication of a block in the cerebrospinal fluid pathway were found on lumbar puncture, myelograms are indicated. Conditions somewhat similar to that described are also seen in the polyneuritis of the arms associated with leprosy, and although this does not seem a possibility in the case described one would have to think of all types of chronic neuritis that would lead to symptoms of weakness and loss of sensation.

SUSPECTED PERIARTERITIS NODOSA

To the Editor—A 46 year old retired Army physician after an attack of pneumonia 20 years ago began having bronchial asthma. From six years ago to four years ago he had an attack of lobar pneumonia and two attacks of bronchopneumonia. Starting four years ago he began to have attacks of fever with temperature up to 102°F. Lasting one to five days. Four months after moving to California (three years ago) he became completely free of fever for seven months but it has returned and in the last six months attacks are longer in duration and periods of freedom last but a week or two. Overexertion seems to precipitate an attack. He has lost 30 pounds (14 Kg). During an attack he suffers from malaise weakness, general aching cramps in the legs and slight increase in sputum but he is almost completely relieved of asthma. He has been studied in two Army hospitals, with no other diagnosis than asthma. Two bronchoscopies have not revealed anything significant. The chest roentgenogram shows slight questionable emphysema. Two iodized oil instillations have shown no bronchiectasis or bronchial stenosis. During an attack there is an elevation of the sedimentation rate but no leukocytosis and only slight ((5 per cent) eosinophilia. Can bronchial asthma per se account for this entire picture?

David McC McKell Jr MD Saratoga Calif

ANSWER—Asthma alone cannot account for the clinical picture presented here. One would have to consider in the differential diagnosis many possibilities in the causation of prolonged and obscure fever. However, one particular possibility which one must consider is periarteritis nodosa. Many of the symptoms mentioned would be compatible with that disease. Asthma is not infrequently associated with periarteritis frequently producing in such associated combinations a hyper eosinophilia. Nevertheless a low eosinophil count can be present. While the average patient with periarteritis nodosa becomes worse more rapidly many have a prolonged course and some undoubtedly recover. A biopsy, probably of muscle might give a clue. The subsidence of the asthma during the febrile stage is a common phenomenon with most infectious diseases.

CORONARY INFARCT AND DIABETES

To the Editor—For three years I have treated a diabetic woman who required 20 units of protamine zinc insulin every morning. Two months ago she had a posterior coronary infarct. After a stormy course, she now is getting along satisfactorily, without any insulin. What effect did the coronary infarct have on her diabetes? Is a relapse of the diabetes to be expected?

M D, Ohio

ANSWER—If the patient in question had proved diabetes prior to the myocardial infarction, it would still be present. It is likely that the improvement in her diabetic condition is the result of closer supervision and, therefore, probably better control of the diabetes during treatment for the heart condition.

It is not uncommon for diabetes to be made worse temporarily during the acute stage of myocardial infarction. However, in this, as in any condition in which patients are kept for relatively long periods under close supervision and, therefore, often better dietary control, improvement in the diabetic status may occur. One would now expect worsening of the diabetic state only if certain influences supervene, among these would be laxity in diet, increase in body weight to the point of obesity, infection and other complications.

ASTHMA AND TRAUMA

To the Editor—My patient had an automobile accident. Examination revealed ecchymosis and contusions of the chest, back and left shoulder, painful respiratory movements, and traumatic pleurodynia. He was disabled for twenty-five days. The patient previously had asthma but had been asymptomatic for six years. Five days after the automobile accident the asthmatic attacks recurred and have been present at irregular intervals. Could the trauma sustained in this accident initiate these attacks?

Theodore Kaplan, M D, New York

ANSWER—It is conceivable that a contusion of the chest may be responsible for recurrence of the asthma in this case. The trauma might be responsible for actual injury to the respiratory apparatus or to the autonomic nervous system regulating the size of the bronchi. Comparable situations are the production of asthma from mechanical irritation of the bronchial mucosa by inorganic dust and the localization of allergic urticarial lesions at the site of mechanical irritation. It is also a possibility that the trauma may act as a psychosomatic factor. Textbooks refer to the possible connection between trauma and asthma.

SNAKE BITES

To the Editor—What are the present ideas on treatment of venomous snake bites? I live most of the year in a citrus grove in Florida. An occasional coral snake has been seen nearby, some water moccasins are in this area, and it is well known that in the interior, not more than 7 miles from my grove, along the flats of St Johns River there are plenty of rattlers. I would like to take precautions, as I am 10 miles from a telephone and 12 miles from a colleague. Should I have at hand some antivenin?

R H Gilpatrick, M D, Cocoa, Fla

ANSWER—Best first aid treatment for venomous snake bites is to immediately apply a tourniquet just above the bite and cross cut incisions through the fang marks about $\frac{1}{4}$ by $\frac{1}{4}$ inch (0.6 by 0.6 cm). These should go entirely through the skin. Mechanical suction is the best method to remove this poison. If there is no mechanical suction cup available, mouth suction is recommended. First aid kits are available. Antivenin is an agent useful as an adjunct in the treatment of snake bite. The present commercially prepared antivenin is polyvalent and is used in treating bites from copperheads, rattlesnakes and moccasin snakes.

CONGENITAL ABSENCE OF FINGER NAILS

To the Editor—A man, age 34, has congenital aplasia of all finger nails. Certain nails are virtually absent, while others are diminutive and deformed. There is no family history of this condition, but one of his children, a boy aged 3, has a similar condition of four finger nails, the remainder being apparently normal. Two other children, one male and one female, have normal-appearing nails. This patient has been subjected to many treatments elsewhere, including various hormone injections, without benefit. Is this a well recognized familial disease, and is any therapy to be recommended?

Earle H Webster, M D, Hyannis, Mass

ANSWER—Aplasia or absence of the finger nails is a familial congenital malformation for which there is no recognized therapy. It has been observed in as many as 11 persons distributed throughout three generations of one family. In some families the condition is dominant, and in others it is recessive. Absence of the finger nails may be associated with underdevelopment of the nails. In certain families it has been accompanied with absence or defect of the patella.

STAIN FOR TRICHOMONAS VAGINALIS

To the Editor—What is the method of staining *Trichomonas vaginalis* (Shunk's flagella stain)? I have the stain and mordants A and B but have been unable to learn the procedure of staining.

R D Haire Jr, M D, Roswell, N Mex.

ANSWER—Place about 8 drops of solution A (which has been prepared a week or more ahead of time and filtered before use) on the slide and immediately add 1 drop of solution B. A precipitate forms on the slide. The excess mordant is carefully drained off and the stain applied without previous washing. (From Gradwohl, R B H. Chemical Laboratory Methods and Diagnosis, ed 3, St Louis, C V Mosby Company, 1943, vol 2, p 1096.)

A stain for flagella preferable to the one referred to is the method recently outlined by Greenblatt in the *Journal of the Medical Association of Georgia* (38:95, 1949). It is a simpler stain than Shunk's and yields excellent results.

PREMENSTRUAL TENSION

To the Editor—A woman 43 years of age experiences marked redness and soreness of the tongue, buccal mucosa and lips one week before the menstrual period. Simultaneously she notices redness and burning of the rectal and vaginal mucosa. The menstrual flow is slightly less than usually observed. The patient is nervous and complains of headache at this time. She is relieved by doses of estrogenic material, and vitamin B complex. Any suggestion would be appreciated.

S R Schooley, M D, Shaverton, Pa

ANSWER—This woman appears to present the syndrome known as premenstrual tension with predominance of symptoms in the mucous membranes. While the condition is rare, there have been reports of menstrual dermatoses, such as herpes, urticaria, acne, erysipelas, angioneurotic edema, erythema and pigmentation, but this consultant has not found a report of a case similar to the one described. The ammonium chloride treatment of premenstrual tension may be tried. The patient should refrain from adding table salt to her food during the last two weeks of the menstrual cycle and should be given 0.6 Gm of ammonium chloride three times daily.

GRINDING OF THE TEETH

To the Editor—In the answer to the query on "Grinding of the Teeth" in *The Journal*, Dec 17, 1949, page 1196, the emphasis was incorrect. While in some cases physical factors may play a part, the emphasis ought to be on the psychologic aspects of the child's home situation. Children grind their teeth because they want to bite something. In my opinion, this is often due to hostility. By 2 years of age all normal children become orally aggressive, and when they are frustrated they wish to bite. When the child bites the frustrating parent the child is punished. In fear the child then bites himself. If this too is not accepted by the parent, the child expresses his rage in a second refinement, i.e., he grinds his teeth. If we are to be of real help, we must attack the real cause. The child's real needs are for an increase of affection and understanding. Any physician can project himself into the child's emotional situation and thereby gain an understanding as to why the child feels frustrated and angry. He must do this without making the parents feel they have been bad parents, and he must study the case long enough to see that what needs to be done has been done. In many cases the results will be excellent after only a few interviews. In other instances, the emotional problem of the child and of its parents is so deep seated that the services of a more experienced psychotherapist will be needed.

James J Bulger, M D, Great Falls, Mont

SPINAL HEADACHE

To the Editor—The comment on prevention and treatment of "spinal headache," in *The Journal*, January 21, page 220, was accurate and sound, as far as it went. However, two important points were not brought out. One concerns prevention, the other concerns treatment. Having done about 2,000 spinals (as chief of the venereal disease division of a large health jurisdiction) and having in consequence nursed about 80 patients through the rigors of postspinal headaches, each of which was blamed—and perhaps rightly—on me, I feel that these two points should be touched on. First, with respect to prevention, a slender needle should be used, not larger than size 20. Fluid is withdrawn more slowly, and there is less likelihood of postpuncture seepage. In my experience this definitely reduces the incidence of headache. If postspinal headache does occur, $7\frac{1}{2}$ grains (0.48 Gm) of caffeine sodium benzoate should be slowly injected intravenously. This often gives almost instant relief. Some times relief is permanent, more often not, and a second injection may be needed after a day or two. It is important for the patient to continue lying flat in bed, without a pillow, as long as headache is severe, regardless of whether caffeine is injected. In most cases cessation of headache, following caffeine injection, is dramatic. Even before the injection is completed, the patient will look at the doctor with an expression of surprise, not quite believing that his headache has really vanished. The patient smiles, the doctor smiles (he's usually a little surprised, too) and there is good feeling all around.

George Hill Hodel, M D, Los Angeles

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THE SCOPE AND RELATIONSHIPS OF PSYCHIATRY IN MEDICINE

Chairman's Address

FRANCIS J GERTY M D
Chicago

Recently, psychiatry has been receiving much more notice and of a different kind than in time past. Less than fifty years ago its place in private practice and in medical education was that of the subordinate branch of the minor specialty of nervous and mental diseases. It had a shakily important position in the field of state and private institutional service. The chief public notice accorded it concerned the troubles and shortcomings of mental institutions and the conflicting testimony of alienists in murder trials. Yet, psyche is a pervasive element in human behavior and that element on which man's claim to superiority over other animals rests. Since psyche is credited with such importance, one might expect that psychiatry would have an important place in the field of medicine. In fact, one might think of its boundaries as being coextensive with those of medicine and expect to learn that in the history of medical progress its role from the beginning had been a major one. Actually, psyche has been considered something superimposed on man and therefore not directly the concern of medicine. Psychiatry was not accepted seriously as a medical specialty even in its institutional form of practice until the nineteenth century. Even now its major relation to the problems of medicine is not readily conceded in all medical schools. Nor do all practitioners of medicine assign it a place as one of the important medical specialties. However, it does enjoy more recognition today than ever before, and the change has come about in a relatively short time. This belated and partial recognition requires comment and explanation.

COMPARISON OF FORMER AND PRESENT CONDITIONS OF PSYCHIATRIC PRACTICE

In nothing is the change in attitude toward the practice of psychiatry more evident than in a comparison of the conditions now existing with what they were formerly. While medicine touched on the problems of mental illness lightly from time to time, until well into the present century psychiatric practice was largely institutional. The emphasis in treatment was principally on humanitarian custodial means, in scientific contributions, more exact clinical descriptions and classifications and study of pathology, in forensic matters, the opinions of alienists on the mental condition

of hypothetic persons. Private practice was usually an adjunct to neurologic work, being concerned with consultations and a combination of physical treatments and psychotherapy. The recommended physical means of treatment included sedatives, tonics, massage, baths, rest, exercise and diet. Not a little psychotherapy was used, some of it by design and some unconsciously. Rational psychotherapy proceeded as far as explanation, reassurance and persuasion, and some practitioners consciously employed suggestion and hypnotism. Patients with major psychoses were sent to state hospitals or to private asylums or retreats. There were private sanatoriums and rest cures for patients with what was commonly called nervous exhaustion. Except in institutions, the exclusive practice of this specialty was almost unknown.

Today, the practice of psychiatry is quite different from what it used to be. There are still special mental institutions, and there are more patients than ever in them. The progress that has been made has affected the institutions somewhat, but not as much as one could wish. In some of them the conditions remain essentially the same as they were twenty-five or fifty years ago. Many physicians are engaged in the exclusive private practice of psychiatry. The American Psychiatric Association now has over 5,200 members. It had 176 members in 1890, when it was known as the Association of Medical Superintendents of American Institutions for the Insane. The field of the medical neurologist has been invaded by the neurosurgeon and the psychiatrist. There are more psychiatrists than neurologists in private practice. Subspecialization in psychiatry is common, especially in psychoanalysis but to a lesser extent in child psychiatry. Of the analysts there are several subgroups, though more or less orthodox. Freudian psychoanalysis is the predominant analytic therapy in America. A number of general hospitals have opened psychiatric units in the last fifteen years. The patients received in the psychiatric units are usually persons with acute psychoses sent to the hospital for treatment by the new physical shock methods. However, now that the psychiatrist is a regular member of the hospital staff, not an occasional consultant, he is kept busy participating in the treatment of other patients than those received in the psychiatric unit. The psychiatric aspect of all illness is given much more attention in these hospitals than formerly, and the mentally ill patients receive a quality of physical treatment not available to them formerly. Most office practice is concerned with psychotherapy, usually with appointments filled far in advance. The outpatient clinics are too few in number but are kept busy giving the same kind of treatment as that available in private offices. The military services, Veterans Administration, many state hospitals and many psychiatric clinics are offering exceptionally good opportunities at unprecedentedly high salaries for quali-

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Read before the Section on Nervous and Mental Diseases at the Ninety-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1949.

fied psychiatrists. Unfortunately, the lure of private practice, particularly in psychoanalysis, is such that even young psychiatrists who have just finished their training will not accept such positions. Without question, a great change has come over the practice of psychiatry in a few years.

REQUISITE UNDERGRADUATE TRAINING

The student of medicine should obtain a good general preparation for the practice of his chosen profession in his undergraduate course of study. Each branch of medicine should contribute its share to this preparation in proportion to its value. A few years ago some approved medical colleges did not offer special courses in psychiatry and most of the others taught little about the subject. Since this was so, one is justified in assuming that recognizing agencies and medical college faculties did not regard the teaching of psychiatry to undergraduate students as an essential part of the preparation for practice but viewed it, rather, as a special branch about which the student should be taught something if time, facilities and the requirements of more important divisions of instruction permitted. Definitely, this view is changing—changing in the face of many difficulties. Once a medical college might have been content to offer a course in psychiatry to senior students, probably of lectures and some clinical demonstrations. The curriculum hours reserved for this purpose were few indeed. In the past twenty years the number of instruction hours assigned to psychiatry has increased greatly in all medical schools where it was formerly in the condition which has been described as having been fairly typical. In most medical schools the course in psychiatry is taught not only in the clinical years but has extended back into the preclinical ones. The effect of Adolph Meyer's† influence on undergraduate medical education should not be underestimated. He termed his psychobiologic concept "commonsense psychiatry." It seems to be so in that it attempts to include all the factors that enter into the life experience in their chronologic sequence and their interrelationships. His school built up slowly between 1906 and 1920, then more rapidly until it reached its peak between 1930 and 1940. During this period the survey of the teaching of psychiatry in American medical colleges was carried on intensively and the American Board of Psychiatry and Neurology was organized. With Meyer's retirement and the coming of the second World War the ground which he had prepared proved much more fertile soil for the growth of psychoanalytic influence in undergraduate education than might have been expected. The tendency is toward much wider acceptance of the view that psychiatry is an essential part of undergraduate medical teaching, not merely a specialist field about which the student needs to learn only a little. As this view becomes accepted—and it becomes accepted through practical demonstration rather than discussion—the implementation of the instruction improves. There are many more full time and part time instructors in psychiatry than there used to be. One of the most fruitful results is the participation in work with other departments of instruction. This brings opportunity to teach students psychiatric technics and principles in the hospital and outpatient departments of services other than psychiatry. The change is not fully accomplished, but the evidences of progress are there.

SPECIALIST EDUCATION—PROGRESS IN STANDARDIZATION

As long as psychiatry remained an institutional specialty or was practiced as a sideline of neurology, the training of psychiatrists was accomplished by a sort of apprenticeship graduation of experience through employment in a mental hospital or under the tutelage of a practicing neurologist. Until recently there was little attempt to standardize training except locally in a few hospitals and institutes. The quantity and quality of teaching and experience were uneven. Practically no attention was paid to choosing specialists on the basis of personality fitness for specialization. In forty years there has been much alteration of standards for the training of specialists in psychiatry. The change began with the pioneer work of Adolph Meyer, Albert M. Barrett and Elmer Southard. The great influence of psychoanalysis on this development cannot be denied, but the organization of the American Board of Psychiatry and Neurology in 1934 has had the chief practical effect in standardizing the education of specialists in psychiatry. In place of a few residencies and fellowships under a few eminent teachers and leaders a much more definitely organized and uniform pattern of training has appeared. Besides its other functions the Board is an agency "To consider and advise as to any course of study and technical training, and to diffuse any information calculated to promote and ensure the fitness of persons desirous of qualifying for a certificate of qualification to be issued thereby." Admission to its examination requires a total experience of five years after a general internship, three years of which shall be a period of study in institutions recognized by the Council of Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in psychiatry and not less than two years of additional practice in psychiatry. At present there are listed over 1,500 psychiatric residency positions in recognized institutions in the United States. Inspection of these institutions is not yet completed, hence, it is difficult to be sure how many of them can give satisfactory training. The Board suggests a program of subject content and of time distribution between the several subject subdivisions. There are a great many candidates for training—even applicants for admission to medical college often express special interest in psychiatry—but many of the recognized training programs do not attract a sufficient number of candidates to fill their quota and other programs have a surplus of applicants. Specifically, many candidates wish to get psychoanalytic training and admit readily that their goal is psychoanalytic office practice. The combined result of the Board suggestions—often referred to as "requirements"—as to subject matter distribution, and the interest on the part of candidates in psychoanalysis—a type of training which is not included in the Board "requirements"—results in a pressuring of training institutes and hospitals to regulate their training programs to meet the demands of trainees. Applicants generally wish to know specifically and almost always in terms of block time and special courses how the residency meets the Board suggestions. This is somewhat annoying to supervisors of some programs, especially in hospitals where a good experience and training might be had in the total program on a time-equivalent basis. Those residencies are at a premium which offer opportunity for arranging for a personal psychoanalysis or include psychoanalysis within their scope. Psychoanalytic institutes have not been

† Dr. Meyer died March 17, 1950

inspected and approved by the American Medical Association as special training institutes, so that this training is still officially in the extracurricular category. The Associated Psychiatric Faculties of Chicago—an organization of persons drawn from two of the universities, three of the hospitals approved for resident training and the Chicago Institute for Psychoanalysis—is attempting to provide an indirect recognition for psychoanalytic training in a special situation. Trainees accepted by this organization may be rotated through the three hospitals, if acceptable to the hospitals, in addition to their analytic training. In return, residents in the hospitals are given priority for analytic training at the Chicago Institute for Psychoanalysis. It is obvious that there is not agreement among psychiatrists that psychoanalytic training should be included at the resident level. Permission to allow time for a personal psychoanalysis to a resident always involves some problem of adjustment of the major program of training. If the thinking of the resident is that psychoanalysis is the major program, the problem becomes greater. Residents undergoing analysis sometimes do become upset emotionally during the process, and this can produce further difficulty. However, opportunity for psychoanalytic training is found only in a few places. The psychoanalytic institutes have waiting lists, seem to be aware of the problems and are screening their candidates with considerable care. At the same time they are trying to increase their means of financial support, amplify their staffs and other facilities and obtain more recognition in medical circles. The lack of adequate personnel and other means required to provide experience in pediatric psychiatry is another problem calling for solution. General psychiatric opinion is much more uniform on the desirability of including this than it is on the subject of psychoanalysis. However, pediatric psychiatrists do not all agree that the general program can include adequate training. The suggestion has been made that a subspecialty certificate be granted after an additional course of training has been taken and an examination has been passed. The general trend in Board examinations and in the training programs has been to decrease the amount of basic and clinical neurology required for candidates in psychiatry. Many psychiatrists and neurologists deplore this tendency, some psychiatrists, especially those with strong psychoanalytic leanings, believe that it is more important for residents to learn other things. In some respects psychiatry now has interests more closely identified with general medicine and pediatrics than with neurology, as is evidenced by the attention now given to psychosomatic medicine. This is reflected in some of the recommendations made for modification of the standards set by the Board of Psychiatry and Neurology. One more practical matter concerning the problem of specialist training should be mentioned. Since specialization in psychiatry now requires five years' experience after the internship, residents want better pay. Many of them are married and have families. If they are also paying \$1,200 to \$1,500 a year for psychoanalytic training, it is apparent that they are under financial pressure.

GENERAL ATTITUDE OF PUBLIC TOWARD PSYCHIATRY

The public notice given to psychiatry recently is deplored by some in the field, welcomed by others. Certainly it is greater in amount and, on the whole, more favorable than in the past. There is still much unfavorable criticism of conditions in mental hospitals, but a new note has appeared in the kind of attention that psy-

chiatry in general receives. The physical methods of treatment are heralded, but most of the notice seems to be given to psychologic aspects of treatment. Lecture platform, lay press, stage, movies, pulpit and courts of law are all mediums for bringing psychiatry to attention. Patients are much less in awe of the specialized vocabulary than they used to be. In fact, they often use the terms glibly. Many of them want to know whether the physician to whom they have been referred is a neurologist, psychiatrist or psychoanalyst. Psychosomatic medicine, the unconscious, symbolism, dream analysis and narcoanalysis are becoming commonplace words. Some ministers of the gospel would seem to make religion mostly psychiatry. Others see psychiatry as a threat to religion. The relationship of psychiatry to social problems and world affairs is assumed by some psychiatrically oriented persons to be major in importance at this time, and preparations are being made for application of its principles in a practical way and on a wide scale to these problems. That psychiatrists themselves should become involved in contributing to publicity is to be expected. They are as likely to be its victims as to benefit by it. The hope that they can take advantage of it to promote progress toward good ends beckons but can lead them too far. The direction and force of this current is not easily controlled, and those who enter it are often swept along in unforeseen ways into unhappy predicaments. It is now more necessary than ever that psychiatrists undertake the task of evaluating the contributions of their profession.

WIDENING FIELD OF PSYCHIATRIC PRACTICE

There are more than 650,000 patients in mental hospitals in the United States. Most of them are persons with more serious types of disorder. Probably many others with major psychoses are to be found outside of hospitals. It is often said that one third to one half of the patients who go to the doctor's office have no physical cause for their symptoms. This is substantiated by hospital and clinic reports concerning large series of patients with gastrointestinal and cardiovascular symptoms. The number of persons who may be classified definitely as having psychoneuroses and personality disorders and maladjustments is certainly large. The most important causes of so-called psychosomatic disorders are probably psychogenic. An increasing amount of attention is being given to cases of this kind. The psychologic encumbrances of ordinary illness are always of some importance and not infrequently influence the progress of the patient. Conversely, all patients with psychiatric difficulties are also subject to the usual physical illnesses. One beholds an ample field for psychiatry. To a greater degree than other specialties psychiatry is interdependent with all the rest of medicine and shows every evidence of bursting through the limits of specialization to make its methods available to all physicians.

Psychiatry may be examined conveniently as to its initial development within the bounds of specialization with respect to its contributions to the treatment of the major psychoses and of the psychoneuroses. This division seems to stress the organic as opposed to the functional, but it is useful for our purpose of revealing the evolution of present day psychiatry. I have no intention of reviewing the full historical background concerning discoveries and concepts as to the organic causation of mental disease and relation of these to the use of physical means of treatment of the major psychoses by

date, name and record of accomplishment. All the names would not be those of psychiatrists. One need cite only the contributions of Wagner-Jauregg to the treatment of dementia paralytica (1917) and those of Sakel (insulin shock treatment of schizophrenia, 1933) and of Meduna (pentylentetrazole [metrazol[®]] convulsive therapy, 1934) to indicate that physical treatments of the major psychoses have had much to do with some of the changes that have come about in psychiatry. Many patients have been cured or helped, favorable attention has come to medicine and psychiatry, research has been stimulated, the doors of general hospitals have been opened to mentally ill patients, and mental hospitals have become somewhat less forbidding places. Undoubtedly, these and other methods of physical treatment have helped promote the private practice of psychiatry. It is doubtful whether they have changed the state of private office practice greatly, have modified much the teaching of psychiatry to undergraduate medical students or affected the residency training programs remarkably. They have had some effect on all of these, it is true, but private office practice, education of medical students and specialists in psychiatry, psychosomatic medicine and pediatric psychiatry have been much more affected by developments connected with the treatment of the psychoneuroses. Explorations to discover the place, value and technic of elicitation and use of psychologic data (in the broadest meaning of the term) in medical examination, diagnosis and treatment had been long overdue.

The treatments formerly depended on principally in the treatment of psychoneuroses were physical in nature. One need not be astonished that Freud's determined invasion of the unconscious by the free association method and all the things he drew from that capacious "grab bag" aroused suspicion and provoked antagonism which persists to this day. His methods were unprecedented and his manner not particularly conciliatory. I shall not review the history of the psychoanalytic movement or attempt to elucidate the principles and practice of psychoanalysis. Neither do I need to trace the origins of its early schisms and later subdivision into psychoanalytic groups and schools of thought. This must be said: physicians, and, of course, first among them neurologists and psychiatrists, whether or not they have turned into one or another kind of psychoanalyst, have been forced to think about, read about, experiment with and discover something about the importance of psychologic data—again giving the widest possible meaning to the term—in medicine. It is this chiefly which has affected the private office practice of psychiatry and made it largely psychotherapy. It is this which recently has changed the kind of undergraduate teaching of psychiatry and has so greatly modified the standards of training of specialists in the field of psychiatry. It is this, too, which has chief responsibility for psychosomatic medicine and much to do with the development of pediatric psychiatry.

The force producing most of these changes was psychoanalysis. Of course, a sustained force of this kind is not easily contained. As it burst through the bounds of psychiatric specialization it is still bursting through the bounds of medicine even as it did in its early days in the case of lay analysis. Proposals have been made that a different degree in medicine, possibly Doctor of Psychological Medicine, be granted after a different type of undergraduate medical course which would omit some of the traditional courses in favor of other courses more suited for the intended purpose. It has

been suggested that this might be a means of counteracting the practice of psychotherapy by unqualified psychologists. Psychoanalysts, perhaps more than others in the field of medicine, tend to move quickly in the direction of offering service in the solution of a great variety of social, governmental and international problems. As sometimes with Freud, a general philosophy seems to overshadow the more definitely medical concepts and technics. There is evidence that psychoanalysts are settling down into the more usual patterns of medical functioning. They are finding their place in medicine and having their effect on it. As they become more generally accepted the need for a protective autonomy will grow less.

SUMMARY

One looks at the future usually in terms of present needs and of hopes as to how they will be met. It is certain that mental institutions need much help from all the branches of medicine,—including, ironically, more from psychiatry than present indications are that psychiatrists will be likely to afford them soon. Some return of benefit to these hospitals should be expected. Research is needed. Although the standards for the conduct of physical types of research were set long ago, implementation, particularly with the best minds in neurophysiology and biochemistry working in association with good clinicians, is imperative. Research in the evaluation of psychotherapy is definitely needed. It will undoubtedly involve careful observation and recording of all that takes place in psychotherapeutic interviews and the application of refined psychologic testing methods. It would seem that training facilities for clinical psychology should be improved and that psychologists should work in the medical setting. The physical scientist likes to work at the level of the physical substratum of the living person, and it is right that he should, but there is an overlay of experience which by its weight and active concatenations affects the substratum and the whole performance of the individual. It is within the purview of science to investigate this overlay also, though the task is difficult and the means in some stages of investigation may have to be quite different from those used for physical investigations. The interdependence of psychiatry and the rest of medicine becomes steadily more apparent. One can never tell from what direction the help will come to psychiatry for the solution of some of its problems. I would not expect psychoanalysis to survive as an autonomous system in medicine, but acknowledgment must be made of the tremendous contribution of Sigmund Freud and his followers to psychiatry and to medicine. It is well to honor a master ever and to follow him far enough but not to be dependent on him too much or too long. What of neurology? All important human activity, including particularly psychic activity, is dependent on controls and regulations operating in the organic nervous system. In the past neurology has been necessarily much occupied with the study of coarse pathology and its effects. A new neurology rooted in physiology is developing. It will become one of the solid important bases of all medicine. On the psychologic level psychiatry has already moved far outside its former limits into the field of total functioning. The common origin and parallel interconnected planes of development of neurology and psychiatry seem to augur that in some future day the designation neuropsychiatrist will have a weightier and more certain meaning than it does now.

TREATMENT OF PSYCHOSOMATIC DISORDERS
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The current data pertaining to psychosomatic disorders have been assembled by physicians with varying degrees of skill and information in psychiatry and medicine. The psychoanalytic studies of small groups of patients have provided the most meaningful facts regarding the psychodynamics and psychophysiologic integrations in these conditions. But these same psychoanalytic techniques can furnish therapy only for relatively few patients. Psychotherapy for the majority of psychosomatic patients rests with the general physician, whose interest in and acquaintance with psychodynamic concepts is usually limited.

Therefore, the practical problem arises as to the best methods of transmitting to the general physician the pertinent psychodynamic data and of guiding him to develop workable techniques of applying such data in his treatment of psychosomatic disorders. In finding answers to this problem, treatment methods must be developed which can be administered by the physician who is not a psychiatrist. This paper will discuss in some detail pedagogic maneuvers which are even now in further evolution and which have yielded certain satisfying results both in therapeutic gains and in increased skill of the students so taught.

It is generally recognized that to effect a favorable response to attempts to indoctrinate persons with new techniques, attention must be given to creating a proper "atmosphere of acceptance." In other words, it has been our plan to provide intensive instruction to certain general physicians and to do so against a background of extensive work with various groups in contact with them. As will be shown later in this paper, the most intensive instruction has been given to the medical residents, but, concurrently, there has been offered extensive teaching of psychosomatic concepts to other groups.

During the four years of medical school, lectures and case demonstrations have been provided to introduce medical students to the psychosomatic point of view. Senior students are required to conduct several intensive psychosomatic studies on patients assigned to their care during the period of ward clerkship on the medical service. Tutorial instruction of small groups of senior students has been offered and enthusiastically received. A weekly "psychosomatic" case conference is conducted and is attended by medical students, house staff, senior staff members of the departments of psychiatry and medicine and other interested persons. An evening seminar in psychiatry and psychosomatic medicine is given twice monthly to a large group of practicing physicians, many of whom are members of the visiting staff.

By this considerable amount of indoctrination, the medical students and visiting staff physicians, two groups which are in constant contact with the medical residents, have been introduced to psychosomatic medicine. Their acceptance of such concepts reinforces the

interest and effort which the medical resident will invest in his treatment of psychosomatic disorders on the wards and in the clinic.

The remainder of this discussion will be focused on (1) the instruction of physicians who have not had psychiatric training in the techniques of psychotherapy which they can administer in "psychosomatic disorders", (2) the goals of such a program, and (3) the results of the program. First and second year medical residents constitute the group on which this effort has been concentrated. The specific setting for this teaching of psychotherapy has been a special psychosomatic clinic. This clinic, which is a division of the general medical clinic, meets two afternoons a week from 1 to 4 p m. The medical residents see their patients from 1 to 3 p m, and the following hour is spent in a control session in which the residents present case material to a psychiatric consultant. Other members of the clinic are present and participate in the group discussion. Patients are seen in this clinic by appointment only and, once they are accepted, will see the same physician, since each resident attends the clinic throughout the year. The length of each clinic visit varies from one-half to one hour, depending on the needs of the patient and the physician's schedule. In this way the medical resident will usually see from 2 to 4 patients at each meeting of the clinic. Patients are selected for this clinic from the general medical clinic and medical wards.

The individual doctor-patient relationship stressed in this clinic is vastly different from that seen in the general medical clinic. In the general medical clinic patients are seen at sporadic intervals, the appointments are subject to delay and the patient may see a different doctor at each visit. These problems are inherent in any large, overcrowded medical clinic and do not represent any lack of desire on the part of those directing the clinic to provide the best possible medical care.

The techniques of therapy which will be discussed shortly are based on the intrinsic value of the clinic atmosphere and the interpersonal physician-patient relationship developed therein. This clinic atmosphere strengthens the physician-patient relationship because it helps the patient to maintain his dignity, self respect and self esteem. This is made possible by the simple fact of the patient's knowing that he has one physician, that he is given definite appointments, that he is not kept waiting for long periods of time and that once he enters a physician's office he can expect to be seen in an unhurried manner for a reasonable length of time. To most of our patients these facts represent a unique experience. In this clinic setting the physicians who have not had psychiatric training, such as the medical residents, have the personal experience of dealing with the emotional aspects of medical disorders. Such personal experience is probably the most effective method of learning and understanding the psychotherapeutic process, however, at the same time it may provoke considerable anxiety in the physician. This anxiety in the physician must be recognized and relieved so that it does not impede learning and therapeutic goals.

Much attention must be given to the reassurance, support and encouragement of the participating physicians. The regularly scheduled control sessions supervised by psychiatric consultants have proved highly valuable in reassuring the medical residents and in allaying their anxieties as therapists.

The goals of therapy in this clinic have been (1) symptomatic relief, (2) improved total functional capacity of the patient, and (3) prevention of recur-

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rences, exacerbations or complications of the patient's illness. One must continually refrain from setting too ambitious therapeutic goals which might frustrate the therapist. It is recognized in the clinic that psychosomatic disorders represent extremely difficult therapeutic problems, and it is meaningful reassurance for the therapist to realize that, in many cases, his efforts are as valuable as those of an experienced psychiatrist.

Many psychotherapeutic techniques are used in varying degrees, but "depth" techniques such as analysis, hypnosis and hypnoanalysis are avoided. To begin with, the physician must develop a real interest in the patient. However, if such a real interest is not forthcoming, the control conferences serve to reassure the physician while at the same time helping him to become aware of his own counter-transference problems as the next step in therapy.

After a thorough physical and laboratory investigation by the physician, the patient is given a clear evaluation of his medical disorder combined with reassurance. This reassurance is not only verbal, it is strongly reinforced by the attitude of the physician in his subsequent dealings with the patient and is mainly dependent on the lack of anxiety that the physician reveals. Thus, it becomes perfectly obvious that in order for the physician to have a reassuring attitude, he must feel secure and confident in his medical ability and judgment and must be willing to face certain necessary risks, such as being criticized by his own conscience and his colleagues for handling serious medical problems in this fashion. In other words, basic reassurance in these instances stems from the patient's conscious and unconscious awareness of the strength, integrity and sincerity of purpose of the physician.

In such a setting, the patient is encouraged to verbalize emotional feelings centered about various current life situations. Frequently, this may be the patient's first opportunity to discuss such problems with a physician, and, in some instances, the physician's interest is interpreted by the patient as meaning that these problems are an intrinsic part of his illness. When necessary, we utilize social service workers and other community agencies to help alleviate the patient's realistic problems, such as finances, housing, homemaking and legal aid. In certain cases, the clinic social service worker may be seeing another member of the patient's family and cooperating with the physician in the over-all management of the patient.

In this clinic, medication may be given frequently as part of the general therapeutic situation and may be of a specific or nonspecific nature. This technique is of special value in instances in which medication represents meeting the patient's dependent needs and magical wishes, especially in patients whose cultural backgrounds are such that being given medicine represents a tangible expression of the physician's interest in them and their complaints. Also, it is probable that many of the residents consciously and unconsciously reassure themselves by giving medications to their patients.

It is important that physicians understand the value of hospitalizing patients with psychosomatic disorders during periods of emotional stress, even though the actual physical condition would not seem to indicate such action. Many of these patients are extremely deprived emotionally and have strong dependent needs. The hospitalization represents actual giving on the part of the physician, in addition to removing the patient from acute external stress. During the hospitalization a strong dependent transference can be established,

which serves to build up a trusting relationship with the therapist. This relationship then becomes the major factor in the subsequent ambulatory therapeutic situation. Such a maneuver is a type of emotional replacement therapy which is particularly valuable in the treatment of psychosomatic disorders, since severe emotional deprivation with pregenital traumas are so frequently the core of the disorder. It becomes apparent then, that in many instances the dependent transference is permitted to exist, since it may continue to be the major factor in therapy.

Although analytic techniques are not used, a certain amount of insight therapy is encouraged. An attempt is made to give the patients insight into certain life experiences which bear a temporal relationship to their symptoms, and, in certain patients, it is possible to interpret noxious current stimuli in terms of similar past experiences which were highly charged emotionally. At times it is necessary to discuss conscious and unconscious attitudes regarding sibling rivalry, hostilities engendered by frustration of dependent needs, competitive envy and guilt feelings. Direct interpretations of unconscious conflicts centering around oedipal problems or of transference material dealing with oedipal conflicts are avoided. However, the therapist is made aware of these problems, and the control session may be devoted to a discussion of such material. In several instances in which oedipal material was dominant, the control session was utilized to point out the dynamics, to reassure the therapist regarding counter-transference attitudes and to help him assume attitudes toward the patient which would provide a corrective emotional experience. When the therapist is made aware of his own counter-transference attitudes, especially in regard to oedipal problems, he is able to continue the therapeutic relationship without mobilization of undue anxiety either in himself or in his patient.

It is of great value when the therapist can recognize repetitive responses on the part of the patient to certain life situations which are specifically emotionally charged, since such experiences may act as precipitating factors in the illness. Interpretations can be made with the hope of making the patient aware of the sensitive areas in his emotional life and the temporal relationship these conflicts play in his illness. In such manner, the therapist may prevent or shorten recurrences in the illness.

The following case is an example of a failure to prevent recurrence and complication in a patient with a duodenal ulcer.

CASE 1—L. M., a 37 year old married white man, was seen in the Psychosomatic Clinic because of a chronic recurrent duodenal ulcer of many years' duration. In the past, numerous exacerbations of the ulcer symptoms had responded temporarily to medical treatment. When he was first seen in the Clinic, the current exacerbation of symptoms was of several months' duration.

The patient was seen for one hour each week for six weeks. During this period he was given the usual medical treatment, antacid agents, antispasmodic drugs and a special diet. The interviews were taken up with a discussion of the patient's difficulties on his job, problems with his wife and financial worry. The therapist attempted to give the patient a good deal of emotional support and would offer suggestions which were designed to relieve some of the tension connected with the patient's employment and marital difficulties. The patient developed a slight degree of insight into the fact that certain tensions associated with his job and marriage seemed to cause exacerbations of his symptoms. Symptomatic improvement was noted within three weeks, and at the end of a six week period

the patient was asymptomatic. Gastrointestinal roentgenograms revealed that the ulcer had healed. As the patient became aware of the tension surrounding his job, he made the decision to quit and obtain other employment. This was done, and the patient stopped coming to the clinic because he was unable to get time off while working at his new job.

The patient was not seen again until he appeared in the emergency ward with a perforation of the duodenal ulcer. An interval history revealed that the day before the perforation he had been discharged from his job as a truck driver after a slight accident which he felt was not his fault. The next day his wife had left him after an argument, and a few hours later while on his way with a friend to a house of prostitution, he was suddenly seized with the severe pain of the perforation.

It is our feeling that had this man been able to continue his relationship with his physician, he might have been given enough support and gratification of his dependent needs during the period of acute emotional distress related to his wife's leaving that the perforation might not have taken place.

Once the therapist becomes aware of the patient's sensitive areas, he can actively help the patient to verbalize feelings about such experiences which might otherwise have remained hidden. This is illustrated by the following case.

CASE 2—D Z, a 23 year old white housewife, entered the hospital with severe headaches (typical of migraine) and attacks of pain in the right lower quadrant of three years' duration. Physical examination revealed persistent hypertension (blood pressure 170 systolic and 130 diastolic) and spasm of retinal arterioles, with scattered tiny scars throughout both retinas. The heart size was at the upper limits of normal, and studies of renal function revealed moderate impairment. Her personality structure was that of an immature, hysterical person with severe frustrated dependent longings.

There was intense sibling rivalry and definite underlying hostility to a rejecting mother. Problems related to sexuality and pregnancy were colored with intense unresolved hostility and guilt, which she had had as a child toward her pregnant mother and younger siblings. In adult life she was unable to adjust to the role of housewife or mother. She lived with her parents, and her own babies were cared for by her mother.

The current illness had started when her younger brother returned from the army and she had been forced to move into her own apartment to make room for him at her parents' home. From this situation, which was a repetition of the original traumatic experience, she developed intense underlying feelings of hostility toward her mother and her siblings who were still living at home. These unexpressed feelings appeared to be associated with the severe attacks of headache and abdominal pain for which she was hospitalized.

After formulation of the psychodynamics in the psychosomatic conference, a therapeutic plan was proposed which was directed at meeting her frustrated dependent needs. This included occasional contacts with the psychiatric consultant, offers of material giving when indicated and continued contacts with the medical resident. However, her presenting symptoms in combination with hypertension and severe spasm of the retinal arterioles aroused considerable anxiety in the medical resident who was following the case. The physician's anxiety was manifested by repetitive physical and laboratory examinations, with frequent consultations. This affected the patient in two ways: first, it gave the symptoms attention-getting value, and, second, it augmented the patient's anxiety, with a resulting increase of symptoms.

The psychiatric consultant continually reassured the medical resident that the patient was being handled properly, and, after a few months, the resident became more secure in dealing with her, because he recognized that the symptoms were not evidence of malignant hypertension but that they recurred in direct relation to emotional and environmental problems. As a result of this knowledge, each time the patient suffered an exacerbation of symptoms the physician immediately inquired into her current life situation with special emphasis on immediate difficulties with her husband, children, siblings or mother

which created frustration of her dependent needs with resulting hostility. The patient was allowed to talk freely about such problems, and temporal relationships to the development of symptoms were discussed. This discussion, plus a rapid physical check-up, served to relieve both the patient's and the physician's anxiety. With such therapy there was a remarkable diminution in both the frequency and severity of the "attacks." At the time of writing, although the blood pressure was unchanged, the patient was not only symptom free but had matured considerably and was functioning adequately as a mother and wife. When there is trouble she and her doctor have little difficulty in quickly discovering the precipitating factors.

It is important for the physician who has not had psychiatric training to realize that psychotherapy is positive therapy and that in many cases it is the only type of therapy that can be helpful. The realization that he may be successful in treating many patients who have had little help from previous medical therapy will enable the therapist to maintain his interest in patients whose condition he once might have regarded as hopeless.

One of the important results of this teaching experience has been the recognition by the medical resident of the ease with which pertinent psychologic material can be obtained while the general medical history is taken. The residents find that most patients are willing to talk about many vital personal matters if the physician not only listens but, by his accepting attitude, conveys the impression that such material is important and meaningful in the general medical illness from which they suffer. Inasmuch as the medical resident is responsible for the total care of his patient, it is necessary that he do the usual careful physical examination and make arrangements for the laboratory examinations that are indicated. As the therapist develops better understanding of the patient's emotional problems, he will refrain from making unnecessary examinations, either physical or laboratory. However, when these examinations are necessary, he will be able to carry them out without anxiety on his part and deal with any misinterpretation on the part of the patient. From our experience we have found that subsequent physical examinations during the psychotherapeutic process have not provoked undue anxiety or untoward reactions.

As a result of their experiences in the clinic, the medical residents have changed their attitude toward many of the ward patients. As an example, there have been fewer "sign-outs" of patients, which undoubtedly reflects the more tolerant and understanding attitude of the medical residents to various types of provocative behavior on the part of their patients. In many instances, the medical resident, realizing that the request for a "sign-out" represents a behavioral problem, will either attempt to handle this without becoming hostile himself or will suggest that such a patient undergo psychiatric evaluation. This is well illustrated by the following case.

CASE 3—W E, a 31 year old Negro man, entered the hospital with dyspnea on exertion of two to two and one-half months' duration. Subsequently, edema, orthopnea and chest pain had developed.

The patient's hypertension was first discovered in the Air Force. Despite a poor school and work record he had become a sergeant after having been in service for two months and then had promptly applied for officers' training. Although he passed the physical and other examinations his application was rejected. About every two months he reapplied only to be rejected which increased his bitterness and resentment. After his last examination, some twenty-two months after he entered the service, he was hospitalized for hypertension and

remained in the hospital until he was discharged from the service six months later. After his discharge he applied for clerical jobs in the Veterans Administration without success.

On entry he was irritable and demanding of attention. His total behavior was extremely provocative in that he was flip, sarcastic, overtly hostile and scornful. When faced with minor frustrations he was seen to beat his head against the head of his bed. It is our feeling that in many instances such behavior would have provoked rejection and punitive countermeasures by the ward personnel. However, the medical resident, who was participating in the Psychosomatic Training Program recognized that such behavior was the result of emotional difficulties and took steps to handle the problem. The ward personnel were called together and were told that this patient was emotionally ill and should be given special attention, especially in regard to fulfilling his requests as soon as possible. Psychiatric consultation was requested, and therapy was begun by one of the psychiatric residents.

Within thirty-six hours after these special measures had been instituted, the patient's behavior was much improved. He was less demanding, his provocative behavior was decidedly diminished, and, in general, he became better adjusted to the ward. It is of interest that during this period the patient's blood pressure dropped considerably and remained only slightly elevated for the remainder of his hospitalization. There was no further difficulty in the hospital management of this patient, and he remained on the ward until his discharge was medically indicated.

The recognition that emotional factors were responsible for this man's provocative behavior and the successful management based on this recognition demonstrate the practical value of psychosomatic training as it applies to the management of patients on a medical ward for the acutely ill.

At the present time we find it impossible to offer a statistical evaluation of therapeutic results. Most of the patients in this group have not been under observation for a sufficient period to determine whether or not the improvement is permanent or whether it is consistent with the usual course of the specific disease under classic medical management. Nevertheless, a few general impressions have been obtained from observation of this group of 170 patients. About 75 per cent of the patients had some medical illness associated with structural changes or persistent disturbances in normal physiologic function, such as hypertension, various types of organic heart disease, asthma, peptic ulcer, diabetes, neurodermatitis, migraine, epilepsy, hyperthyroidism and obesity. The remaining 25 per cent of the patients had primarily neurotic disorders, without evidence of structural disease or persistent pathophysiologic disturbances. However, in the group with medical disorders a large percentage had concomitant personality disturbances and/or neurotic symptoms, which in many instances accounted for the major degree of disability.

In the majority of patients there was symptomatic improvement, in many instances not related to that in the underlying structural disease. This is classically seen in patients with hypertension: symptoms frequently disappear although the blood pressure and associated structural pathologic conditions remain unchanged.

In about half the group there was improvement in total functional capacity while the patient was being given treatment in the Clinic. Many patients, when first seen, were functioning at a level far below that which their physical condition would permit. Improvement in functional capacity was determined by objective evaluation of the patient's ability to perform adequately at work, and in his home and social

environment within the limits set by his physical disability. It was observed that symptomatic improvement was not necessarily accompanied by improvement in functional capacity.

Although some patients exhibited improvement in behavior patterns, no thoroughgoing modifications of character disturbances have been achieved.

Probably the most important result of the program is that the medical residents for the first time begin to develop feelings of security and stability in dealing with patients who have emotional disorders. The alleviation of the therapist's anxiety, which in the final analysis makes him a better doctor, is mainly accomplished by the control sessions, which are essentially therapeutic. For this reason we intend to drop the group control sessions and, instead, spend one hour a week in an individual supervisory session with each resident. Our experience thus far indicates that reassuring supervision is the most important part of the learning experience.

It would appear reasonable to anticipate that the medical residents and fellows who have had this introductory experience will have increased their functional capacities as physicians.

EFFECTS OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) THERAPY

Electroencephalographic and Neuropsychiatric Changes
in Fifteen Patients

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The adrenocorticotrophic hormone of the pituitary (ACTH) is now being used in the treatment of many disorders¹ such as rheumatoid arthritis, lupus erythematosus, periarteritis nodosa, dermatomyositis, rheumatic fever, allergic states and other conditions involving mesenchymal tissue. The effect of this substance on the course of infections, neoplastic diseases, metabolic disorders, myopathies and mental illness is also being evaluated.

The present investigation was undertaken in order to study the nature of electroencephalographic abnormalities and neuropsychiatric disturbances which had been noted incidentally in patients treated initially with this drug. Altogether, 15 patients treated with pituitary adrenocorticotrophic hormone were studied at the Columbia-Presbyterian Medical Center. Thirteen of these patients on the medical service² had the following diagnoses: rheumatoid arthritis, 8 cases, dermatomyositis, 2 cases, toxic diffuse goiter, 2 cases, and regional ileitis, 1 case. In addition, 2 patients with schizophrenia were observed at the New York State Psychiatric Institute. The accompanying table indicates the patient distribution by diagnosis, age, sex, dosage and duration of drug administration; it also relates electroencephalographic and neuropsychiatric observations to data on therapy.

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² These patients were referred by Drs. Charles Ragan, Sidney Werner and George Perera.

METHOD OF STUDY

The electroencephalographic records were taken with Grass equipment (six and eight channels). Standard monopolar and bipolar records were obtained, and in each observation a five minute period of hyperventilation was included. One or two control records were obtained prior to treatment. During the period of drug administration records were taken every four to seven days in most instances. One or two final records were obtained about a week after termination of therapy.

The psychiatric studies consisted, whenever possible, of an evaluation of the premorbid personality and of frequent interviews by one of us during the course of

one normal and one slightly slow record. Seven patients had basically slightly slow records characterized by occasional runs of low to medium voltage activity at a rate of 5 to 7 cycles per second.

During the course of hormonal administration the records of 2 patients remained unchanged, records of one had been normal, of the other one had been slightly slow. The other 13 patients had significant changes of a moderate or severe degree in their records. These changes, which usually appeared three to five days after treatment was started, consisted of (a) reduction in amplitude, regularity and continuity of the basic alpha activity and slowing of the alpha activity, in the most

Clinical, Electroencephalographic and Neuropsychiatric Data on 15 Patients Receiving Pituitary Adrenocorticotrophic Hormone

Case	Age Sex	Clinical Diagnosis	Dosage of Drug		Duration of Drug Adminis- tration	Pretreatment Electro- encephalogram	Electroencephalogram During Drug Administration	Premorbid Personality Characteristics	Mental Changes During Drug Administration
			Mg / Day	Total (Mg.)					
1	40 M	Rheumatoid arthritis	60-15	1 125	27 days	1 Normal 9-11/sec 2 Slightly slow 5-7/sec.	Disorganized irregular low voltage 3-5/sec especially during hyperventilation	Some emotional instability	Mild euphoria in- creased tension insomnia
2	34 F	Rheumatoid arthritis	100-40	300	6 days	Normal 10-12/sec.	Irregular discontinuous alpha rare 7/sec	Schizoid features	Moderate euphoria verbal hype- activity
3	19 F	Rheumatoid arthritis	40	280	7 days	Normal 9-11/sec	Irregular 5-7/sec often in bursts	No significantly ab- normal features	Mild euphoria
4	62 F	Rheumatoid arthritis	60-25	4 900	5 mo	Normal 10-12/sec	Irregular, 5-7/sec some 15/sec	No significantly ab- normal features	Mild euphoria mild tension in omnia
5	45 M	Rheumatoid arthritis	40	240	6 days	Slightly slow 6/sec	Irregular 4-6/sec increasing with hyperventilation	No significantly ab- normal features	Mild euphoria
6	42 F	Rheumatoid arthritis	100-40	580	13 days	Normal 10-12/sec	Irregular alpha slowing dis- organized 5-7/sec 4-5/sec and 15/sec	Affective lability suicide attempt	Manic psychotic reaction
7	49 M	Rheumatoid arthritis	75-40	315	7 days	Irregular 10-12/sec some 5-7/sec	Increased incidence of 5-7/ sec	No significantly ab- normal features	Mild euphoria
8	43 M	Rheumatoid arthritis	100-40	340	7 days	Irregular low voltage 5/sec	No significant change	No significantly ab- normal features	Very mild euphoria
9	35 F	Dermato- myositis	100	1 800	18 days	Normal 10-11/sec occasional rapid and spike 15/sec	Alpha absent low voltage 4-5/sec especially parieto- occipitally and during hyperventilation	Emotional insta- bility	Stupor state
10	29 F	Dermato- myositis	100	900	9 days	Normal 10-11/sec	Alpha absent low voltage 5-7/sec and 4-5/sec espe- cially frontally and pariet- ally increasing during hyperventilation	No significantly ab- normal features	None
11	20 M	Regional Hells	50-100	1 400	15 days	Irregular 5-7/sec.	Further slowing to 4-5/sec especially during hyperven- tilation	Schizoid features	None
12	36 F	Toxic diffuse goiter	100	1 700	17 days	Rare alpha dis- organized 4-6/sec 10-12/sec activity during hyper- ventilation	More disorganized no alpha further slowing to 3/sec during hyperventilation	No significantly ab- normal features	Increased tension and irritability
13	42 F	Toxic diffuse goiter	100	1 700	17 days	Alpha present 12-13/sec occa- sional 4-7/sec	Increased 4-7/sec activity especially during hyperven- tilation	No significantly ab- normal features	None
14	24 F	Schizophrenia	200	2 000	10 days	Rare alpha Ir- regular 5-7/sec	Further slowing to 3-4/sec increased incidence of 5-7/ sec slow activity often in bursts	Emotional insta- bility schizoid	No significant changes
15	39 F	Schizophrenia	200	2 000	10 days	Normal 10/sec	No significant change	Emotional insta- bility schizoid	No significant changes

treatment. In some of the earlier cases striking changes in personality and behavior were evaluated on the basis of reports by medical and nursing personnel. Neurologic examinations were also performed before and during therapy whenever indicated. All patients received the drug³ by intramuscular injection every six hours. Complete medical and laboratory studies including electrolyte balances were carried out and will be the subject of separate reports by members of the medical staff.

ELECTROENCEPHALOGRAPHIC OBSERVATIONS

Prior to their treatment with pituitary adrenocortico-tropic hormone 7 of the patients had essentially normal electroencephalographic records. One patient had

striking case from a rate of 12 to 13 cycles per second to one of 7 to 8 cycles per second, and (b) the appearance of large amounts of slow activity (3 to 7 cycles per second) that occurred at random or in bursts, often increased in incidence or amplitude or both in response to hyperventilation.

In 1 instance spike activity appeared in addition to slowing, and in another there were runs of rapid activity (15 cycles per second) interspersed with the slow activity. Several examples of these changes are shown (figs 1 and 2). The electroencephalographic abnormalities gradually became more pronounced during the course of treatment but reverted in most instances to the pretreatment level within one week after the drug was discontinued. The changes could not be conclusively correlated with drug dosage levels or alterations in blood sugar and electrolytes.

3. The pituitary adrenocorticotrophic hormone was supplied by Dr. John R. Mote, medical director, Armour Laboratories.

NEUROPSYCHIATRIC CHANGES

Alterations in mood, affective responses and behavior were noted, in varying degree, in 10 of the 15 patients. The changes were mild to moderate in 8 of them. Those with rheumatoid arthritis showed, in

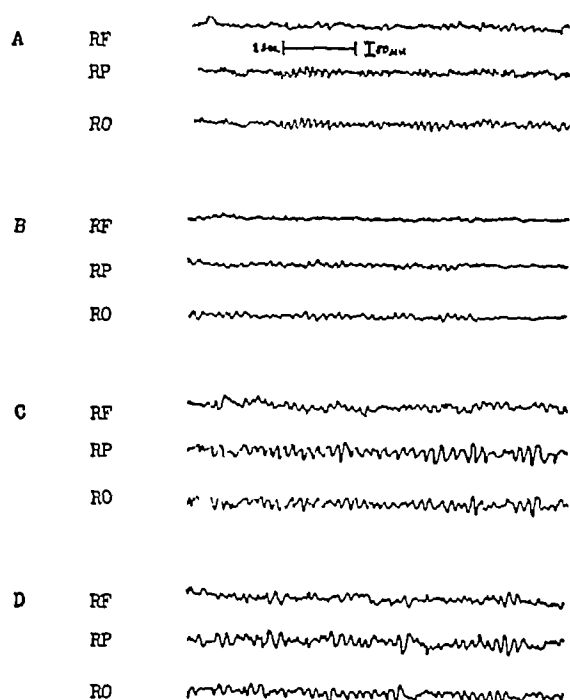


Fig 1 (case 4)—All records shown in this and succeeding figures are from the right frontal (RF), parietal (RP) and occipital (RO) regions, calibration for 50 microvolts and time for one second indicated. *A*, electroencephalogram before treatment essentially normal, somewhat irregular record, *B*, after five days of treatment (60 mg pituitary adrenocorticotrophic hormone per day) alpha activity lower in amplitude, less regular and discontinuous. Some 6 to 7 cycles per second activity has appeared, *C*, nine days after *B*, hormonal dosage 15 to 50 mg per day alpha activity is now rare and a great deal of medium voltage 5 to 7 cycles per second activity is seen throughout the record, *D*, seven days after *C* on the twenty-first day of treatment 20 to 25 mg of the drug per day irregular record with persistent slow activity and a small amount of rapid activity (15 cycles per second).

general, an increasing feeling of well-being, alertness and some tension and irritability as the drug exerted its symptomatic effect on pain and movement. This occurred within the first three days of treatment. Six of these patients remained mildly elated or euphoric as long as the effect of the drug lasted but reverted rapidly, within one or two days, to their previous state after treatment was discontinued. One patient (case 2 in the table) became increasingly elated and showed progressive euphoria, hyperactivity and incessant talking. Administration of the drug was discontinued because of this reaction. One of the 2 patients with toxic diffuse goiter became more tense and irritable during the treatment, this occurred with a rise in basal metabolic rate (from +53 per cent to +75 per cent). The other patient did not manifest significant changes. Pronounced psychologic alterations were not noted in 1 case of dermatomyositis in which there was initial improvement in clinical symptoms. The patient with regional ileitis (basically a schizoid personality and possibly with a borderline psychosis) did not display further changes in his personality reactions. The 2 patients with schizophrenia also showed no definite alterations in mental symptoms, however, further investigation of the treatment of this disorder with pituitary adrenocorticotrophic hormone is in progress.

The cases of 2 patients who manifested severe mental changes are reported in detail.

CASE 6—A married woman aged 42 with severe rheumatoid arthritis of nineteen years' duration was treated with the hormonal agent, 100 mg a day for the first day, then 40 mg a day

for the duration of treatment. Within three days she became moderately euphoric and during the next few days increasing tension, irritability, insomnia and pressure of speech gradually appeared. During this time the arthritic symptoms had been greatly relieved and she was ambulatory. Finally psychomotor hyperactivity became severe, and it was apparent that a fully developed manic psychotic reaction had occurred. The drug was discontinued after thirteen days of administration because of this reaction. Two electroencephalograms taken at the height of the psychosis showed pronounced disorganization of alpha activity, slow waves (4 to 7 cycles per second) and interspersed rapid activity (15 cycles per second). The results of neurologic examination during this time remained normal, and the sensorium was always clear. She had no insight into her mental disturbance.

During the ten day period following drug stoppage the mental symptoms of the patient persisted unchanged and the arthritic symptoms did not relapse. The patient could not be managed on the medical service and was transferred to the Psychiatric Institute. No change occurred, and a state of exhaustion developed in the patient. She was then given electroconvulsive therapy, two treatments on one day and one each on the two following days. She refused further treatment, nevertheless her manic reaction cleared completely. About one month later joint pain and restriction of movement returned, and she had persistent minor daily fluctuations in mood.

Prior to her illness she had shown lability and a highly active, outgoing personality. During her illness she became bitter, resentful and depressed but showed many attempts at compensation. There had been some delay in arranging for the present hospital admission. She became more anxious and depressed and made a suicidal attempt ten days prior to admission.

CASE 9—A married woman aged 35 who had dermatomyositis was treated with 100 mg of pituitary adrenocorticotrophic hormone daily for eighteen days. Four days after the beginning of treatment she became lethargic and incontinent of urine, and an unsteady gait developed, her speech was dysarthric, and there was a tendency toward wandering in her ideation. There were no other positive observations on neurologic examination. The treatment was continued, and this state cleared after a few days. During this time definite changes in the electroen-

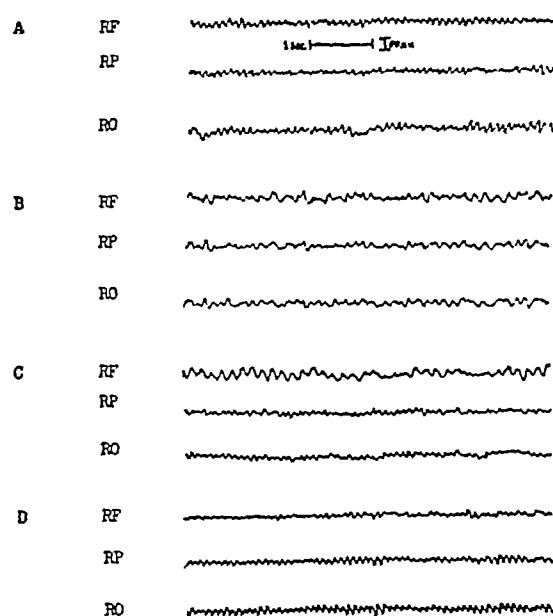


Fig 2 (case 10)—Records from the right frontal, parietal and occipital areas time and calibration as in figure 1. *A*, electroencephalogram before treatment essentially normal, *B*, after seven days of treatment (100 mg of the drug per day) irregular slow activity, 4 to 5 cycles per second and 5 to 7 cycles per second is seen throughout. The alpha activity has disappeared, *C*, after the drug had been discontinued for one week persistent 5 to 6 cycles per second activity is seen in the frontal areas, *D*, four days after *C*, eleven days after the drug was discontinued the record is essentially normal throughout.

cephalogram had appeared. On the seventeenth day of treatment the patient rapidly went into a state of stupor, which lasted about thirty-six hours and then cleared spontaneously.

Neurologic observations during this episode were not significant. An electroencephalogram taken one day prior to the onset of this reaction had shown a spontaneous notable improvement, but a record taken during the stupor was again decidedly abnormal with dominant 5 cycle per second activity throughout. The electroencephalographic changes of this patient are shown in

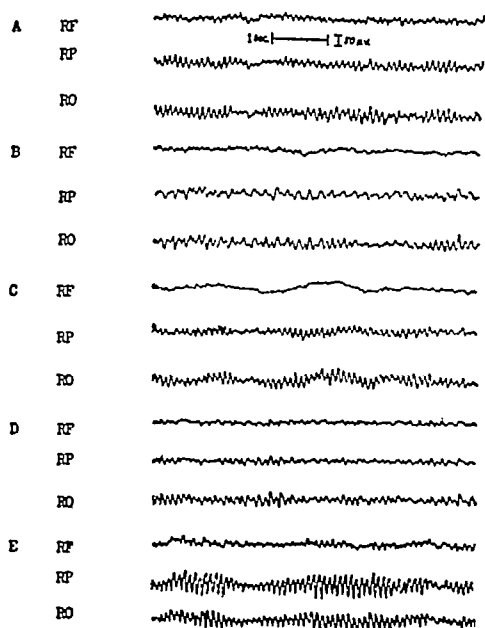


Fig 3 (case 9)—All records from the right frontal parietal and occipital areas. Time and calibration as in the other two figures. *A* electroencephalogram before treatment, essentially normal record *B* after nine days of treatment, 100 mg of the drug per day. The alpha activity has disappeared completely and is replaced by 4 to 5 cycles per second activity throughout. *C* seven days after *B* on the sixteenth day of treatment dosage unchanged 100 mg of the drug per day. This record shows spontaneous improvement with approximately normal alpha activity throughout. *D* two days after *C* on the eighteenth day of treatment. At this time the patient was in a state of stupor. 5 to 7 cycles per second activity has reappeared. *E* after the drug had been discontinued for eight days. The record is again essentially normal with good parietal and occipital alpha activity.

figure 2. Treatment with the drug was discontinued, and eight days later the electroencephalogram showed the normal pre-treatment pattern.

This patient had been regarded as emotionally unstable and maladjusted in her marital life. She had shown episodes considered to be hysterical in the past. At these times the symptoms were mainly those of muscular weakness.⁴ The reaction which developed during the course of drug therapy was of an organic reaction pattern, with definitely correlated electroencephalographic abnormalities. The alterations of the records, premonitory personality characteristics and mental changes of all patients are summarized in the accompanying table.

COMMENT

The present study has shown that electroencephalographic and neuropsychiatric changes occur in patients treated with pituitary adrenocorticotrophic hormone. Thirteen of 15 patients manifested electroencephalographic abnormalities. Nine of the patients with changes also had mental symptoms. Ten of the 15 patients showed neuropsychiatric changes. For 2 of these in whom severe mental symptoms developed the records showed abnormalities. In 8 patients mild to moderate mental symptoms developed. Only 1 of these did not show electroencephalographic changes (case 8), and the euphoric reaction of this patient was mild. Thus, there is a suggestive correlation between the development of mental symptoms and electroencephalographic abnormalities in this series.

⁴ Muscular weakness, one of the symptoms of dermatomyositis might have been misinterpreted in this case.

In order to attempt a fuller understanding of these observations a review of the pertinent physiologic effects of the hormone is indicated. These physiologic changes are generally due to the induced hyperactivity of the adrenal cortex. The most significant alterations are⁵ sodium and chloride retention with associated water retention, potassium excretion, elevated serum carbon dioxide-combining capacity (with occasional hypochloremic alkalosis), decreased sodium and chloride in the sweat, increased gluconeogenesis with hyperglycemia, a diabetic-type dextrose tolerance curve and increased deposition of liver glycogen, decreased serum inorganic phosphorus, falls in circulating eosinophils and lymphocytes associated with a leukocytosis (neutrophilic), increased uric acid excretion, decreased serum cholesterol (free), increased calcium excretion, increased excretion of 11-oysteroids, 17-ketosteroids and creatine, and a negative nitrogen balance. In some patients there develop acneiform eruptions, hypertension and hirsutism. These changes occur to a varying degree in each instance. The drug therefore produces increased secretion of the three major groups of adrenal steroids: electrolyte regulating, carbohydrate regulating and androgens. Many of the foregoing occur in Cushing's syndrome, and this clinical picture has been approximated in several patients receiving hormonal therapy.¹

The electroencephalographic changes cannot be explained adequately on the basis of these known physiologic alterations at the present time. In this series there was no conclusive correlation between the electroencephalographic abnormalities and changes in blood sugar or electrolytes. The following factors should be considered:

1. Alterations in dextrose metabolism. In most cases hyperglycemia occurs, but there may be defects in intermediary metabolism or in cerebral utilization of dextrose.

2. Interference with the acetylcholine cycle. Torda and Wolff⁶ reported defective *in vitro* synthesis of acetylcholine by brains of rats treated with the hormonal agent. Yet in other *in vitro* experiments adrenocortical steroids seem to enhance the synthesis of acetylcholine.⁷

3. Water retention. This would seem to be significant, yet patient 14 of this series gained 23 pounds (10.4 Kg) as the result of hydration and was 1 of the 2 patients without electroencephalographic abnormalities.

4. Disturbances in potassium balance. A decrease in serum potassium occurs, but too little is known to correlate this with electroencephalographic alteration.

5. Alkalosis, although an inconstant finding, may be an important factor. Hyperexcitability of neurons is known to occur in the presence of this state⁸ and is particularly seen in tetany. After pituitary adrenocorticotrophic hormone therapy, changes in serum calcium are too variable to be considered significant in this respect.

6. A peculiar "toxic" effect of the hormone or of excessive adrenocortical steroids might be considered. Selye⁹ has reported an anesthetic or hypnotic effect of

⁵ Forsham P H, Thorn G W, Prunty F T G and Hills A G. Clinical Studies with Pituitary Adrenocorticotropin. *J Clin Endocrinol* 8: 15-66 1948.

⁶ Torda C and Wolff H G. Effect of Adrenotrophic Hormone of Pituitary Gland on Ability of Tissue to Synthesize Acetylcholine. *Proc. Soc. Exper Biol & Med* 57: 137-139 1944.

⁷ Torda C and Wolff H G. Effect of Steroid Substance on Synthesis of Acetylcholine. *Proc. Soc. Exper Biol. & Med* 57: 327-330 1944.

⁸ Gasser H S and Grundfest H. Action and Excitability in Mammalian A Fibers. *Am J Physiol* 117: 113-133 1936.

⁹ Selye H. Studies Concerning Anesthetic Action of Steroid Hormones. *J Pharmacol & Exper Therap* 73: 127-141 1941.

large doses of steroids. Adrenocortical steroids have also been reported to have anticonvulsant properties,¹⁰ but the mechanism of this effect has not been clarified.

7 One other possible factor is the hypertension produced in some cases, particularly those treated for several weeks. In 1 case of acute lupus erythematosus, not included in this present study, a subarachnoid hemorrhage followed an acute rise in blood pressure after treatment with adrenocorticotrophic hormone for three days.

It is evident that the electroencephalographic changes cannot be attributed to any one of the factors already enumerated. It is probable that several of these or other as yet unknown factors are operating to produce these electroencephalographic abnormalities in any individual case.

Previously there have not been reports of electroencephalographic changes after administration of the hormone. However, there are several brief observations of electroencephalographic changes in relation to adrenocortical steroid administration or dysfunction of the adrenal cortex. Grenell and McCawley¹¹ noted "increase in amplitude and some change in frequency of brain waves" after administration of adrenocortical extract to cats and "incipient changes of a similar nature" after administration of this extract to human subjects. Boland and Headley¹² noted increase in frequency of alpha waves after administration of cortisone. We have observed 2 patients with rheumatoid arthritis who have been treated with cortisone, one after an initial course of pituitary adrenocorticotrophic hormone therapy. In both of these a slight slowing of alpha activity appeared which was much less pronounced than that observed in the series of patients receiving the latter drug.

It seems, therefore, that there is a significant relationship between adrenocortical activity and the electrical activity of the brain. At present the physiologic basis of this is obscure. Prior to treatment 8 of our 15 patients had shown mildly abnormal electroencephalographic tracings. This would strongly suggest metabolic or other changes of a minor degree reflecting on activity of the central nervous system.

Minor mental reactions such as euphoria have been reported in cases of rheumatoid arthritis treated with cortisone and pituitary adrenocorticotrophic hormone.¹³ These reactions can probably be regarded as normal responses to relief from chronic disease or acute painful symptoms. One patient (case 1) after therapy with pituitary adrenocorticotrophic hormone was treated with cortisone and was capable of describing the different effects of the two drugs. Both relieved the arthritis and produced a feeling of well-being or mild euphoria. With the former drug the patient was tense, irritable, insomniac and unable to concentrate because of mental hyper-

activity. While receiving cortisone the patient felt "more nearly normal," had no difficulty sleeping and was able to concentrate and carry on his business. Electroencephalographic changes occurred while he was receiving cortisone, but to a lesser extent than during therapy with pituitary adrenocorticotrophic hormone.

In this series, more severe mental changes have been observed. At least two important factors should be considered in relation to these disturbances.

1 The occurrence of an organic mental reaction related to the physiologic changes previously discussed. The stuporous state of 1 patient (case 9) of this series and the correlated electroencephalographic abnormalities can be regarded as an example of this type of reaction.

2 A released psychotic reaction with exaggeration of premorbid personality trends. This could be considered, for example, in case 6 of this series (manic psychotic reaction). Certainly both factors could be operating in any particular case. Many diseases now under treatment with pituitary adrenocorticotrophic hormone (rheumatoid arthritis and allergic states) have received intensive psychiatric investigation.¹⁴ The role of the adrenal cortex in relation to personality changes has also been emphasized recently. Neuropsychiatric disturbances (particularly paranoid manifestations) have been described in states of hyperadrenalism.¹⁵ Schizophrenic patients are reported to show defective adrenocortical responses to stress.¹⁶

SUMMARY

1 Pituitary adrenocorticotrophic hormone (ACTH) was administered to 15 patients with a variety of diseases.

2 Significant changes in the electroencephalogram occurred in 13 of the 15 cases.

3 Psychiatric changes, in 2 instances severe, occurred in 10 of the 15 patients.

4 The mode of production of either type of change is not clear. Various physiologic and psychologic factors are discussed.

5 The present report is regarded as preliminary, and further studies are in progress.

6 It should be emphasized that powerful sideeffects may accompany the therapeutic achievements of pituitary adrenocorticotrophic hormone. This is especially important in view of the necessity of long-range planning for the use of the compound in chronic diseases.

622 West 168th Street (32)

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Misunderstandings to be Avoided—A physician, in his relationship with a patient who is under the care of another physician, should not give hints relative to the nature and treatment of the patient's disorder, nor should a physician do anything to diminish the trust reposed by the patient in his own physician. In embarrassing situations, or whenever there seems to be a possibility of misunderstanding with a colleague, a physician should seek a personal interview with his fellow—Section 1, Chapter III of the PRINCIPLES OF MEDICAL ETHICS of the American Medical Association.

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MIDCENTURY WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH

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Since the turn of the century the United States has concerned itself periodically with the preservation of its greatest asset, the children of the nation. The Mid-century White House Conference on Children and Youth is the fifth of a series. The first was held in 1909 on call of President Theodore Roosevelt in particular to study the dependent child. It resulted in fifteen recommendations, the most important of which was the establishment of a Children's Bureau, which occurred in 1912. The second White House Conference, called by President Wilson in 1919, set standards for children entering employment and for protection of health of mother and child and of those in need of special care.

The third conference, called by President Hoover in 1930, was concerned with the total aspects of all children. Twelve hundred experts worked for sixteen months on the needs of children, which were considered under four heads: medical services, public health and administration, education and training, and the handicapped. The results were published in thirty-two volumes, many of which are still standard in their field. This conference resulted in the Children's Charter (a set of nineteen points embodying the main recommendations of the conference concerning the rights of all children and the aims toward which the conference hoped to lead the public thought and action for the children of the country) and a great advance in pediatrics and pediatric education. It was the first conference to devote attention to growth and development of children. The fourth conference, called by President Franklin D. Roosevelt, was to determine how children in a democracy can best be helped to grow into the kind of citizens who will know how to preserve and protect the nation's democracy.

In September 1949 President Truman appointed fifty-two citizens particularly interested in child health and welfare to serve on the National Committee of the Mid-century White House Conference on Children and Youth. Although considerable work has been done in thirty-four states in preparation of the conference, it was not until the first meeting of this National Committee that the focus of the conference was decided.

"The Mid-century White House Conference bases its concern for children on the primacy of spiritual values, democratic practice and the dignity and worth of every individual. Accordingly, the purpose of the conference shall be to consider how the mental, emotional and spiritual qualities essential to individual happiness and to responsible citizenship can be developed in children and what physical, economic and social conditions are deemed necessary to this development."

At first it may seem a far cry from the treatment of the sick to the raising of the child to responsible citizenship. I recall some of my experiences in forty years in the practice of pediatrics to show how the responsibilities of physicians have widened in scope. In 1911, when Miss Ahrens and I started the work of the Chi-

cago Infant Welfare Society, one of my first duties was to visit the physicians who practiced in the area in which we planned to establish our well baby stations. Without exception, the physicians were willing to have us look after the feeding of well babies, provided we did not take care of the sick. Many volunteered that feeding babies was something for grandmothers or nurses to do or that the directions on the can should be followed. How different today! Infant mortality rates of 120 to 150 per thousand live births in 1905 have been reduced in most of the states to below 50 and in some even below 30. In no small measure gratitude for this accomplishment goes to the general practitioner, who has since received training in the medical school in the care and feeding of the child and who is taking care of 75 per cent of the babies. His education has helped him to assume the responsibilities in disease prevention. In like manner, I recall the prominent Minnesota practitioner at my first meeting of the Minnesota Public Health Association in the early 1920's who said, "You are taking the bread out of our mouths," in a discussion of a paper on the prevention of diphtheria by immunization. This lack of appreciation of the duty of the physician to prevent disease as well as to cure it is now a thing of the past. With the help of the Children's Bureau and the Public Health Service, the study of the Academy of Pediatrics showed that the general practitioner gives 30 per cent of the time he devotes to children to preventive measures and 70 per cent to treating disease. According to this same study, it is the general practitioner who takes care of 75 per cent of the children, the pediatrician takes care of only 11 per cent of the children and other specialists of the remaining 14 per cent.

A further stage in the extension of the field of medicine in which the pediatrician has made a considerable advance is in the prevention of the behavior disturbances of infancy and childhood. All physicians are greatly indebted to the late Dr. C. Anderson Aldrich for teaching them the importance of a proper understanding of growth and development in the care and treatment of the normal child as well as the sick child. The establishment of the Rochester Child Health Institute in January 1944 with Dr. Aldrich as its director was the culmination of much preliminary work to see what the application of these principles of growth and development could do for the children of an entire community. Our ideas were based on the conception that health as such was not an end in itself but was a means to the end that the happy child grow into responsible citizenship. To state it another way, what success have we attained if our efforts have given us a physically healthy criminal with a life expectancy of ten or twenty additional years in which to carry out his antisocial schemes?

Our study is now almost six years old, and we have learned much by our successes as well as by our failures. We know that over 90 per cent of infants will decide for themselves on a schedule of three meals a day before the end of the first year. We know that in spite of all our efforts 30 per cent of the children when they reach the end of the second year still have some difficulty with feeding, sleeping or elimination. We know that the play center which brings together a psychologist, a nursery school teacher and a group of mothers and their children suffering from some behavior disturbances is an excellent means of greatly reducing and in

many instances completely getting rid of the disturbance of behavior by a weekly play period of two to three hours. Eight to twelve sessions are usually sufficient to restore to normal the strained relations between mother and child, the elimination of which is so important to the child's emotional development.

I come back again to the fact that general practitioners are taking care of 75 per cent of the American children and that most of them have had no course whatsoever in growth and development and its relationship to the prevention of the behavior disturbances of infancy and childhood, even now the students in many American medical schools are not receiving adequate training in growth and development.

As the general practitioner cares for 75 per cent of American mothers, he is in a position to advise mothers during their pregnancy as to their impending responsibilities as mothers in addition to the advice he gives them as to their proper physical care. With the birth of the child his responsibilities are greatly increased. He is the one who for the next six years will be more closely associated with the mother, and I hope the father also, than anyone else in working out a successful program for the emotional development of their child.

It is generally recognized that the earlier a behavior disturbance occurs, the greater is the likelihood of its having a lasting effect on the child. The first six years of a child's life are the foundation on which the edifice of personality will be constructed, and the later effects of school and community life can at times be crippling or maturing, depending on the basic foundation. In these first years the physician and nurse are in a key position to help the parents prevent behavior disturbances. Dr. Aldrich's little book, "Babies are Human Beings,"¹ and Dr. Spock's book, "The Pocket Book on Baby and Child Care,"² are helpful in assisting the general practitioner in solving some of his patient's problems. The physician is so vital in this program that he needs special training in this important field both when he is in the medical school and after graduation. He also needs to learn to appreciate the help that the public health nurse, the social service worker, the teacher and the psychiatrist can give him in working out specific problems.

The theme of the Midcentury White House Conference—the development in children of mental, emotional and spiritual qualities that will lead to happy childhood and responsible citizenship—has been related herein to the general practitioner and his great opportunity for rendering services. I want to outline plans of the conference: "(a) to bring together in usable form pertinent knowledge related to the development of children, and indicate areas in which further knowledge is needed, (b) to examine the environment in which children are growing up, with a view to determining its influence on them, (c) to study the ways in which the home, the school, the church, welfare agencies and other social institutions, individually and cooperatively, are serving the needs of children, (d) to formulate, through cooperative efforts of laymen and specialist, proposals for the improvement of parental, environmental and institutional influences on children, and (e) to suggest means whereby these proposals may be communicated to the people and put into action."

To accomplish these purposes, the National Committee of fifty-two persons appointed by the President elected an Executive Committee of sixteen members, which appointed four advisory councils: the Council on Participation of National Organizations, the Advisory Council on Federal Government Participation, the Advisory Council on State and Local Action and the Advisory Council on Youth Participation. All these committees are engaged in gathering pertinent information and making plans to be put into action.

The Executive Committee also appointed four technical and special committees: the Committee on Fact Finding, the Committee on Communications, the Committee on Conference Meeting Program and the Committee on Budget and Finance.

The National Committee has four representatives on each of the councils, but each council elects its own chairman and is represented by him on the executive committee as an *ex officio* member.

There is medical representation on the Advisory Council on Participation of National Organizations, the Council on Federal Governmental Participation, and the Council on State and Local Action, as well as on the Technical committee on Fact Finding. A physician in general practice has been requested to represent the American Medical Association on the Advisory Council of National Organizations and the Technical Fact Finding Committee.

It is the first White House Conference in which youth is represented in the national committees and is taking an active part in the work of the councils and committees.

This conference is organizing the preliminary phase so as to enlist the participation of every one of 3,076 counties in the forty-eight States to assess itself as to its child health, educational and welfare needs and activities, particularly as they concern the theme of the conference. State committees have been appointed by governors in the fifty-three states and territories.

The county studies will be analyzed by the state committees and a state report sent to the staff of the Conference Committee, which will use this and all other material that it has gathered to make a composite report to the conference at its meeting in December 1950 on the national state of affairs. The national organizations will work with one another and also cooperate with the state and local groups. Governmental agencies have assigned personnel to the conference staff to help collect and analyze available data and aid in all aspects of the conference.

After the information from various sources has been analyzed and interpreted at the conference meeting in December, it must be communicated to the various states and localities, so that with the interest generated by studying their local conditions they will put into effect the recommendations of the conference. A special committee on communications will aid in presenting the material to the public in usable form.

The Midcentury White House Conference on Children and Youth has received an appropriation of \$75,000 from Congress for 1949-1950, but this represents only about one sixth of the amount needed to meet its contemplated budget, the remainder of which is being raised from private sources.

1 Aldrich, C. A., and Aldrich, M. M. *Babies Are Human Beings*, New York: The Macmillan Company, 1945.

2 Spock, B. *Pocket Book of Baby and Child Care*, New York: Pocket Books, Inc., 1949.

Let me emphasize the importance of the theme of this conference by a quotation from Dr Brock Chisholm, the director general of the World Health Association

It would appear that this quality of maturity, this growing up successfully, is what is lacking in the human race generally, in ourselves and in our legislators and government which can only represent the people Only when children have been helped to reach maturity successfully can we hope to have enough people able to see and think clearly and freely enough to be able to prevent the race going on as we have gone, from slaughter to bigger and better slaughter

It is our hope and intent to bring finally to the general practitioner more information and specific help in filling even better his key position in assisting the healthy growth and development, in the broadest sense, of the nation's children, its greatest asset

ANTISPASMODIC DRUGS

Evaluation of Their Effects on the Motor Activity of the Upper Portion of the Small Intestine in Man

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The purpose of this communication is to present in summary form our results of testing the effects of a number of commonly used antispasmodic drugs on the motility of the upper portion of the small intestine in man The agents have been administered in the usual therapeutic doses to healthy young adults, and their action has been recorded by a multiple-balloon water manometer system In spite of the numerous studies on this subject, the results have often been conflicting¹ The discrepancies have in part been due to differences in experimental methods and technics and to inadequate control observations Our studies have been an attempt to minimize the variables due to these factors by employing standardized testing procedures and observing changes in motility over long test periods following the administration of placebos Perhaps an additional variable has been more adequately controlled by using as experimental subjects persons with normal intestinal function

Fifty-one observations have been made in 22 different subjects In addition to the 14 placebo studies, tests were carried out with the following drugs orally given atropine, tincture of belladonna, amprotoprine phosphate (syntropan®), pavatrine hydrochloride® (beta-diethylaminoethyl fluorene-9-carboxylate hydrochloride), asylmatrine hydrobromide® (diethylaminoethyl phenylthienyl acetate hydrobromide) and adiphenine hydrochloride (trasentine hydrochloride,® diphenylacetyl-diethylaminoethanol hydrochloride)

From the Medical Services Massachusetts General Hospital and the Department of Medicine Harvard Medical School

Read before the Section on Gastroenterology and Proctology at the Ninety-Eighth Annual Session of the American Medical Association Atlantic City, N J June 9, 1949

This study was supported by grants from Hoffmann-LaRoche Inc. Nutley, N J and G D Searle & Co Chicago

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Eleven of the 12 subjects who were studied with placebos were tested with one or more of the drugs The details of the method and the results with each drug will be reported elsewhere² The four lumen tube used in these experiments, a five minute sample of a graphic record and types of wave patterns representing nonpropulsive and propulsive waves are shown in figure 1 Each balloon was connected to its water manometer by a separate lumen The lines extending between the tube and the graphic record on the left indicate the position of each balloon tracing As illustrated on the right, the small, relatively rapid waves were nonpropulsive in character The high, sustained contractions with the broad base were found to be associated with a forward movement of barium and were regarded as propulsive or peristaltic in type Tone, or the sustained tension of the bowel wall, was indicated by the resting level of the contractions³ Changes in propulsive waves were evaluated by visual inspection of the records and total contractions, and tone by measurements of the surface areas of the tracings for five minutes at uniform fifteen minute intervals The average duration of the recording periods was slightly over four hours, with nearly fifty minutes elapsing on an average before the medicaments or placebos were given

RESULTS

1 *Orally Given Atropine and Tincture of Belladonna*—Propulsive Contractions A comparison of the effect of placebos, orally given atropine in doses varying from 0.45 to 0.6 mg and 0.4 cc, or 20 drops, of tincture of belladonna is shown in figure 2 The mean values represent the percentage change in propulsive waves as compared to the average activity during the forty-five

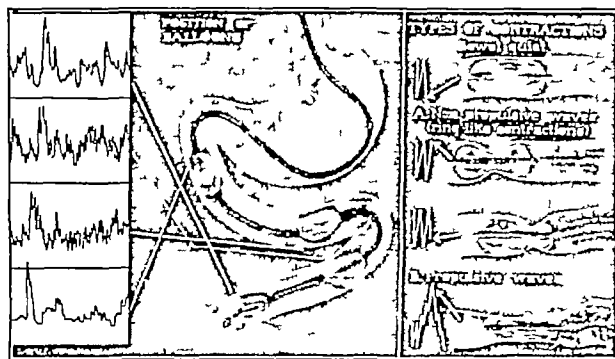


Fig 1—Illustration showing position of the four balloons in the upper portion of the small intestine the types of contractions and a graphic record of motility for a five minute period The lines indicate the tracing for each balloon The small rapidly occurring waves are non propulsive and the high sustained waves with a relatively broad base are regarded as propulsive or peristaltic contractions The direction of the wave is forward (toward the right)

minute premedication interval for each group Beginning at thirty minutes after the administration and continuing throughout the remainder of the test periods, the mean values for the 14 placebo observations showed a decrease in propulsive waves averaging 27 per cent less than the mean of the levels before the placebos were given The range of the decline in activity for

2 Chapman W P and Palozzo W L Multiple Balloon Kymograph Recording of Intestinal Motility in Man with Observations on the Correlation of the Tracing Patterns with Barium Movements to be published

3 Chapman W P Rowlands E N Taylor A and Jones C M Multiple Balloon Kymograph Recording of Variations in Motility of the Upper Small Intestine in Man During Long Observation Periods Before and After Placebo Administration to be published

any fifteen minute period was from plus 6 to minus 43 per cent. An analysis of the records revealed that the initial decrease in contractions, at the forty-five to ninety minute postplacebo period, was associated with the spontaneous occurrence of spasms in 8 of the 14 tests. These spasms, indicated by a sustained elevation of the resting level of the contractions, lasted anywhere from five to twenty minutes. During their presence, and for as long as twenty minutes afterward, the propulsive waves were usually decidedly decreased or abolished.³ The diminution in propulsive waves in the placebo tests, therefore, was in part explained by the occurrence of spasms.

The orally given atropine (crosshatched arrows) and tincture of belladonna (black arrows) produced a much more striking fall in propulsive contractions than that noted with the placebos. The maximal effect of both drugs was apparent in seventy-five minutes after their administration. At this time the mean values for orally given atropine and for tincture of belladonna were both about 80 per cent less than the predrug levels. For the next one and three-quarter hours the drug

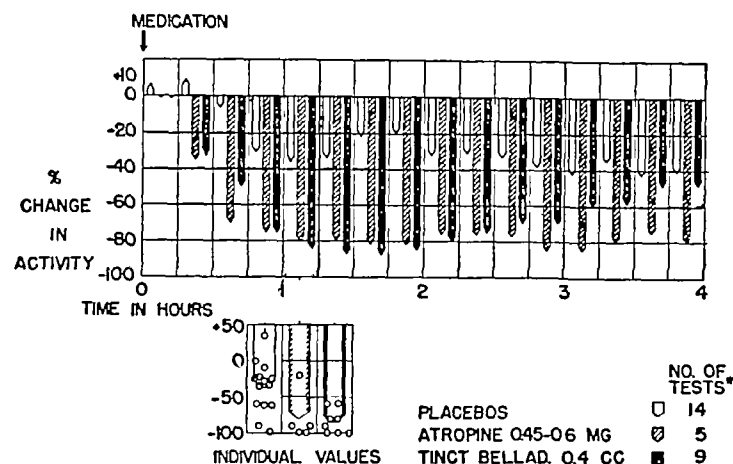


Fig 2—Effect of tincture of belladonna orally given atropine and placebos on propulsive contractions (predrug and postdrug mean values compared). The chart shows the percentage decrease in propulsive contractions following the administration of placebos (white arrows) oral atropine (crosshatched arrows) and tincture of belladonna (black arrows) over a four hour observation period. The maximal effect was obtained with both drugs in the one to one and one-quarter hour period. The individual test values for this period are shown by the scattergram. Except for the last hour of observation the drug effects were much more striking than the changes occurring with the placebos. The mean values for each one-quarter hour period were obtained as follows: propulsive activity for each test per fifteen minute period was first compared with its average value for the forty-five minute predrug period. The average values were then obtained by dividing the sums of the individual test values by the number of tests in each period.

* The number and duration of the tests were as follows: placebos 13 tests for two hours, 9 for three hours and 6 for four hours; orally given atropine, 5 tests for two hours, 4 for three hours and 2 for four hours; and tincture of belladonna 7 tests for two hours, 6 for three hours and 5 for four hours.

effects were comparable and caused a decrease in contractions that was at all times at least 50 per cent greater than that observed in the placebo tests. Thereafter, the tincture of belladonna was relatively less effective than orally given atropine, although the smaller number of observations during this latter period made the comparison less significant.

Total Contractions. The mean values for changes in total contractions, as determined by the measurements of the surface area above the resting level of the contractions, are shown in figure 3. These values were expressed as the percentage changes compared to the average of the levels for forty-five minutes before the medicaments were given in each particular test. The trend was the same as that noted for the propulsive waves. Tincture of belladonna produced a striking fall

in total contractions in forty-five minutes, with the maximal effect occurring thirty minutes later. The maximal effect, except for one fifteen minute interval, continued for the next sixty minutes and was at least 50 per cent more decided than the spontaneous decrease

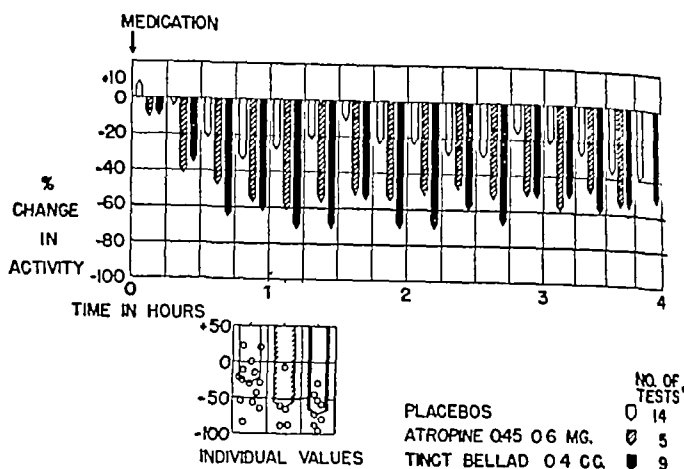


Fig 3—Effect of tincture of belladonna orally given atropine and placebos on total contractions (predrug and postdrug mean values compared). The chart shows that orally given atropine (crosshatched arrows) and tincture of belladonna (black arrows) caused a much more striking decrease in total contractions than was noted following the administration of placebos (white arrows). The maximal drug effect was obtained during the one to one and one-quarter hour period. The individual variations in the three groups for this fifteen minute interval are shown by the scattergram. Total contractions were measured for the five minute period just preceding each one-quarter hour interval. The mean values were calculated in the same manner as for the propulsive contractions shown in figure 2.

* The number and duration of the tests were as follows: placebos 13 tests for two hours, 8 for three hours and 4 for four hours; orally given atropine, 5 tests for two hours, 4 for three hours and 2 for three and three-quarter hours; and tincture of belladonna 7 tests for two hours, 6 for three hours and 5 for four hours.

in contractions with the placebos. The effect of orally given atropine was about the same as that of tincture of belladonna, the maximal effect occurring in about seventy-five minutes, with only a slight recovery of contractions occurring during the next two and one-half hours. In contrast to the action of the drugs the

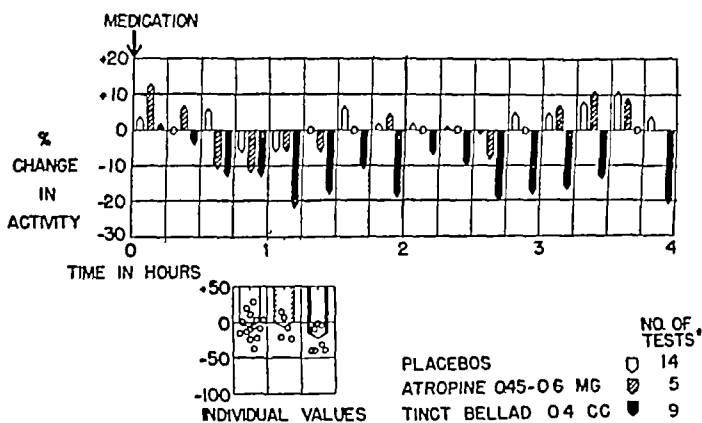


Fig 4—Effect of tincture of belladonna, orally given atropine and placebos on tone (predrug and postdrug mean values compared). The chart shows the percentage change in tone following the administration of placebos (white arrows) oral atropine (crosshatched arrows) and tincture of belladonna (black arrows) over a four hour observation period. The open circles along the zero line on the main chart indicate no change in tone. Tincture of belladonna caused a slight but consistent decrease in tone as compared to the slight and inconsistent changes in tone in the orally given atropine and placebo tests. The individual values at the one to one and one-quarter hour interval for the three groups are shown by the scattergram. The values for the percentage change in activity were calculated in the same manner as for the propulsive contractions shown in figure 2.

* The number and duration of tests were the same as for total contractions shown in figure 3.

average decrease in total contractions in the placebo tests was considerable less. The decline in activity, beginning with the first thirty minute postplacebo

period, averaged 27 per cent with a variation from 11 to 40 per cent

Tone The alterations in tone in the three groups of tests were much less striking than the changes in contractions. Tone remained essentially unchanged following the administration of the placebos and atropine (fig 4). The mean values for both groups were within a range from plus 15 to minus 15 per cent. Tincture of belladonna produced a slight but consistent decrease in tone, the maximal effect appearing in seventy-five minutes after the drug was given. During the next two hours, when a minimum of 6 subjects was included in the tests, the variations in tone were from minus 20 to minus 7 per cent.

The individual variability in propulsive contractions, total contractions and tone, and the difficulties of evaluating changes in nonpropulsive waves have been considered in detail elsewhere⁴. The ranges of variation, typical of the three groups of tests, are shown by the scattergrams for a uniform fifteen minute period in the lower portion of figures 2, 3 and 4. It was apparent that the wide, spontaneous fluctuations in motility encountered in the placebo experiments were much

DRUGS	NUMBER OF TESTS	ANTISPASMODIC ON CONTRACTIONS	EFFECT ON TONE	SIDE REACTIONS
PAVATRINE®	9	○○○○○○○●	○○○○○○○○○	NONE
ASYMATRINE HYDROBROMIDE®	5	○○○○●	○○○○○	NONE
AMPROTROPINE PHOSPHATE®	5	○○○○○	○○○○○	DIZZINESS (I.M. ROUTE)
TRASENTINE®	4	○○○○	○○○○	NONE

Fig 5—Effect of newer antispasmodic drugs on motility of upper portion of the small intestine. The number of ineffectual tests (showing no antispasmodic effect on contractions or tone) is shown by the open circles. The number of effectual tests (having an antispasmodic effect) is shown by the black dots. Except for 1 pavatrine hydrochloride® and 1 asymatrine hydrobromide® test, the various drugs produced no effect not obtained with placebos. No results were obtained comparable to those observed with orally given atropine or tincture of belladonna. Amprotropine phosphate administered intramuscularly was the only drug which gave a side reaction. The average time that the drugs were studied was three hours. The route of administration was mostly oral. Drugs were given in the usual therapeutic dosage.

greater than the variations in the drug values at the time of their maximal effect. Nonpropulsive contractions seemed in general to change in the same direction as propulsive contractions, though to a lesser degree, in the three groups studied. However, one could not always be certain of this.

The only side reaction noted with orally given atropine or tincture of belladonna was moderate dryness of the mouth. This side effect was elicited in 5 of the 14 tests, and its presence or absence did not correlate with the magnitude of decrease in motor activity.

Newer Antispasmodic Drugs—Changes in motor activity following the administration of amprotropine phosphate, pavatrine hydrochloride®, asymatrine hydrobromide® and adiphenine hydrochloride were compared to the observations in the placebo, orally given atropine and tincture of belladonna studies. A test was regarded as showing no drug effect if the maximal decrease in propulsive contractions, total contractions or tone was no greater than the average change in activity observed with placebos. A probable effect was

taken to be one in which the maximal effect was greater than the average changes noted with placebos, provided this effect occurred within ninety minutes after administration and provided the decrease in activity was not related to the spontaneous occurrence of spasms. A belladonna alkaloid-like action was ascribed to any test in which the decline in activity was equal to the average effects noted with orally given atropine or tincture of belladonna.

Asymatrine Hydrobromide®—Of the 5 tests with orally given asymatrine hydrobromide® 2 subjects received 50 mg each, 2, 30 mg each and 1, 40 mg of the drug. No effect was obtained in four tests. A probable effect was obtained in 1 test with 30 mg. This positive result might be questioned inasmuch as this same subject, in his test with 40 mg of the drug showed no change in contractions.

Pavatrine Hydrochloride®—Four tests were made with the oral administration of 250 mg and 2 tests with 125 mg of pavatrine hydrochloride®. In addition 3 subjects were given 50 mg of the drug as a rectal suppository. No probable effect was obtained except for 1 test with 125 mg. As this same subject showed no effect on a subsequent test with 250 mg of pavatrine hydrochloride® given orally, it became questionable whether the result in her 125 mg test represented a probable effect of the drug.

Adiphenine Hydrochloride—In three tests with 150 mg of orally given adiphenine (trasentine®) hydrochloride and one study with 50 mg of the drug given intramuscularly, no effect on motility was obtained.

Amprotropine Phosphate—Amprotropine Phosphate was given orally in doses of 50 mg to 2 subjects, and 25 to 30 mg was given intramuscularly to 3 subjects. A suggestive effect on motility was obtained in only 1 of the 5 studies. This subject showed a maximum decrease in propulsive waves twenty-five minutes after the oral administration of 50 mg of the drug. At the same time segmental waves increased. Therefore, while propulsive waves were decidedly diminished for a period of one hour, total contractions were essentially unchanged.

As far as could be concluded by our test procedures the newer antispasmodic drugs were ineffectual in decreasing the motility of the upper portion of the intestinal tract. These drugs also produced no side effects, with the exception of amprotropine phosphate administered intramuscularly. The drug given in this manner caused moderate dizziness.

CONCLUSIONS

As a result of these studies of the action of drugs on the upper portion of the small intestine in man we have come to the following conclusions:

1 A spontaneous decrease in propulsive contractions, averaging as much as 27 per cent with a range of plus 6 to minus 43 per cent occurred during 14 observations in 12 subjects following the administration of placebos.

The spontaneous decrease in total contractions for this group was about the same, the mean being 27 per cent with a variation from 11 to 40 per cent for the fifteen minute periods starting thirty minutes after the placebos were given. In individual tests the striking decline in contractions was almost always associated with the spontaneous occurrence of spasms. Effect of a drug purported to have a relaxing effect on contrac-

⁴ Chapman W P, Rowlands E N and Jones C M. Multiple Balloon Kymograph Recording of the Comparative Action of Oral Atropine, Tincture of Belladonna and Placebos on the Motility of the Upper Small Intestine in Man to be published. Chapman Rowlands Taylor and Jones.

tions seemed problematic unless the magnitude of its action was at least greater than the average changes occurring with placebos and unless its effect could not be due to spasms. Contrary to the alterations in propulsive waves and total contractions, tone tended to remain essentially unchanged.

2 Orally given atropine in doses varying from 0.45 to 0.6 mg in 5 subjects and 0.4 cc, or 20 drops, of tincture of belladonna in 9 subjects produced an average decrease in propulsive waves and total contractions at least 50 per cent greater than that obtained with placebos. When considered individually, 1 atropine test and 1 test with tincture of belladonna produced changes no different from those obtained with placebo and were therefore regarded as ineffectual. Tincture of belladonna produced a slight decrease in tone, whereas the effect of orally given atropine on tone was equivocal. Spasms occurred in only 3 of the 14 tests with the belladonna alkaloids and were unimportant in accounting for the results obtained with these two drugs.

3 The newer so-called antispasmodic drugs, amproprine phosphate (syntropan®), pavatrine hydrochloride® (beta-diethylamino ethyl fluorene-9-carboxylate hydrochloride), asymatrine hydrobromide® (diethylaminoethyl phenylthienyl acetate hydrobromide) and adiphenine hydrochloride (trasentine hydrochloride® diphenylacetyl-diethylaminoethanol hydrochloride), when given in the usual therapeutic doses, produced no decrease in motility not observed with placebos, with the possible exception of 1 asymatrine hydrobromide® test and 1 pavatrine hydrochloride® test. None of the tests showed results comparable to that obtained in 12 of the 14 observations with orally given atropine or tincture of belladonna. Whether these newer antispasmodic drugs have a favorable effect on hypermotility and relieve symptoms due to such altered motor activity could not be answered by these experiments. Our subjects were healthy persons, with no symptoms referable to the upper portion of the small intestine when the drugs were given; they did not show hypermotility, as far as we could determine, during the tests. It seemed most unlikely, however, in view of these observations, that the action of the newer antispasmodic drugs on symptoms due to an abnormally active intestine would be greater than that obtained with atropine or tincture of belladonna.

The extent to which our observations have been confirmed by other investigators will be considered fully in other publications. In brief, it may be said that these results are in essential agreement with the findings of Elsom and Drossner,^{1a} Huidobro and others,^{1c} and with the more recent reports by Posey and associates,^{1d} Kramer and Ingelfinger⁵ and Lorber and Machella.⁶

4 The extreme variability in the patterns of intestine motility from subject to subject, and in a given person from hour to hour, as well as from one bowel segment to the other, has been discussed in detail elsewhere.³ The pronounced variations noted in these studies made us hesitate to base any conclusions on calculations of statistical significance until a larger number of tests have been made, particularly in subjects receiving placebos as well as drugs.

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ABSTRACT OF DISCUSSION

DR FRANZ J INGELFINGER, Boston. Belladonna alkaloids evoke a definite effect, but synthetic antispasmodics modify intestinal motility no more than does the administration of placebos. The moderate but apparently consistent effect of placebos suggests that psychogenic influences may be at play. But it is surprising that normal subjects, without specific attitudes or expectations, should so consistently manifest an inhibitory response. I am wondering whether the apparent effect of placebos might not be attributed in part to other causes. Motility normally diminishes as balloons pass down from the duodenum to the ileum. In the course of a three to four hour test, balloons lying beyond the duodenum tend to move downstream, even if the tube is fixed at the nose or an anchoring intragastric balloon is used, for the intestine will creep up over the balloon and will plicate itself, accordion fashion, on the tube. Second, records from a balloon maintained in a fixed duodenum suggest that this organ gradually exhausts itself in trying to expel the balloon. Hence, in evaluating the influence of placebos, the possible effects of shifts in position of balloons and of exhaustion should be considered. Finally, the emotional and physical fatigue of a subject exposed to prolonged intestinal intubation may affect intestinal motility. These considerations do not detract in the least from the excellent controls provided by the placebo studies. On the basis of these, Dr Chapman has confirmed and extended other observations to the effect that many popular synthetic antispasmodics do not affect intestinal motility appreciably, at least as far as can be determined by balloon kymographic methods. Balloon methods of course are subject to many objections. One cannot be sure that the intestinal motility stimulated and recorded by a balloon simulates the motor disorder in a patient with gastrointestinal complaints. In an effort to overcome this objection in part, I have produced artificial intestinal obstruction by a second balloon lying distal to the recording balloon. The results, however, have been the same, the propulsive waves so induced can be partly inhibited by atropine-like drugs but not at all by some of the well known synthetic antispasmodics. Objective tests like those of Dr Chapman throw doubt on the efficacy of many synthetic antispasmodics. Fortunately some new substances such as dibutoline sulfate (dibutyl carbamate of dimethylethyl-beta hydroxy-ethylammonium sulfate) look more promising.

DR WILLIAM P CHAPMAN, Boston. Dr Ingelfinger mentioned that possibly the fatigue of the bowel may be one reason for the decline in activity noticed with placebos. Another point is that the balloons during our observations moved down the bowel, therefore, one would ordinarily expect a decrease in activity. We do not know about the fatigue of the bowel. The whole matter of the physiology and the chemistry of smooth muscle contractility is a question mark, and I would not want to discuss that. As far as the movement of the balloons is concerned, we left one, the proximal balloon, in the stomach as an anchor while performing these studies. When we observed the patient at the end of the study, we would often see that the curve was taken up by the tube going around the greater curvature to the pylorus. It would become straightened out, therefore, we felt that there would be, at least with the balloons in the duodenum, a movement of 6 to 8 inches (15 to 20 cm) in that area. As far as the tip balloon was concerned, we had no way of knowing just what part of the bowel was being studied, because of the tendency for the jejunum to sleeve up on the tube. We believe that this decline in activity, inasmuch as it was about the same in all the balloons in the duodenum and jejunum, probably was not too important a factor in explaining these changes.

As to the psychogenic factors, we tried to keep the patient as comfortable physically and mentally as could be. We asked how he was feeling at the end of the test. It is distressing to lie on one's back for several hours with a tube through the nose or throat. However, all subjects went through the same procedure when they had the placebos or the various drugs. We believe that the psychogenic and emotional factors were about the same in the control studies and with the various medications.

⁵ Kramer, P., and Ingelfinger, F. J. Use of Antispasmodics and Spasmodics in the Treatment of Gastro-Intestinal Disorders, *M. Clin. North America* 32: 1227, 1948.

⁶ Lorber, S. H., and Machella, T. E. The Effect of Syntropan on the Motor Activities of the Human Gastrointestinal Tract and on Gastric Acidity, *Gastroenterology* 12: 57, 1949.

OCCUPATIONAL VIRUS HEPATITIS

An Apparent Hazard for Medical Personnel

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It is well known that virus hepatitis has been accidentally transmitted to persons inoculated with materials containing untreated human serum, plasma or blood. The possible accidental transmission of virus hepatitis without direct inoculation is a more recent concept. If a physician accidentally inoculates himself with virus-containing blood in the process of treating a patient, he is practically in an equivalent position with the patient receiving such material. However, the illness of the physician which might result would be classified as occupational. It is possible that a similar occupational situation may exist among technical personnel who merely handle serum, plasma or blood. If such a situation does exist, thousands of persons throughout the world are potentially involved.

We are in a position to report 7 cases of apparent virus hepatitis which occurred among workers handling blood and its derivatives at Cutter Laboratories. All cases were provisionally considered industrial and have been handled as such. They occurred in two groups. 3 cases appeared in 1946-1947 and after an interval of two years 4 cases in 1949. During this entire period all personnel were carefully watched, so it is known that other clinical cases did not occur. The occupational origin of these illnesses was considered with the first case in 1946. Further inquiries at that time showed little, if any, information in this country on similar cases.

In spite of the significance of the possible acquisition of hepatitis through mere contact with blood, we have delayed reporting our cases because of doubt regarding the mode of transmission. We are also deeply concerned over the implications for physicians and other workers who may be handling human blood. A careful review of the literature, however, has revealed a number of pertinent references to apparent virus hepatitis among laboratory or clinical workers. These occupational illnesses have sometimes been spoken of as "spontaneous infections." While it is difficult at the present time to obtain complete information regarding the status of hepatitis among personnel in other laboratories, a general personal survey by one of us (W E W) indicates that the occurrence of hepatitis in laboratory personnel handling blood is not uncommon in the United States. We wish to emphasize our belief that this problem needs further study to separate the occurrence of serum hepatitis from other causes of hepatitis.

TYPES OF VIRUS HEPATITIS

It is generally accepted that there is a naturally occurring infectious hepatitis and a homologous serum type which has been transmitted to man by the artificial, parenteral injection of virus-contaminated human serum. A simplified terminology has been suggested: virus hepatitis IH for the former and virus hepatitis SH for the latter. The two diseases are probably due either to different viruses or different strains of the same virus.¹ A distinguishing difference between them is the

longer incubation period for virus hepatitis SH, but according to Aycock and Oren² this may be due to the admixture of the homologous serum virus with serum antibodies rather than to any inherent differences in the characteristics of the two viruses, although other studies justify the dual nomenclature.

Virus hepatitis SH has been transmitted experimentally to human volunteers through the parenteral injection of contaminated serum or blood.³ There is some evidence, though scant, of its oropharyngeal transmission. Some writers⁴ believe that patients with serum hepatitis have transmitted it to contacts, presumably through this route. However, there is no experimental support for the transmission of serum hepatitis in this manner. The well recognized accidental modes of acquiring the disease are through infusion with infective individual or pooled blood or plasma, through parenteral injection with a vaccine contaminated by human serum, or, finally, by injection or venipuncture with an improperly sterilized syringe or needle.

Virus hepatitis IH is subject to both parenteral and oral routes of transmission, oral including the nasopharynx. Workers have verified transmission by these routes experimentally and in human volunteers;⁵ the parenteral route by injecting infected serum or blood; the oropharyngeal route by feeding infected material such as blood or feces, or by spraying it into the nasopharynx. Droplet infection into the conjunctival sac has also been suggested.

This brief review of modes of transmission may help to clarify the following references to occupationally transmitted hepatitis.

REVIEW OF LITERATURE

During the preparation of this article Leibowitz and others⁶ reported an instance of virus hepatitis in a blood bank worker, who, they believed, contracted the disease as a result of accidentally pricking her finger with a needle or needles contaminated with blood containing the causative virus. Their case was also considered industrial and was industrially compensated.

In 1944 in an extensive treatise on postvaccination jaundice in American army personnel, Karl Meyer and his group⁷ reported similarly that "a physician in England, who had been vaccinated against yellow fever six months previously with a noncytogenic lot, pricked his finger with a syringe needle while taking blood from a patient suffering from postvaccination jaundice. He developed an attack of hepatitis four months after the accident."

2 Aycock W L and Oren W F. Prolonged Incubation Period as Epidemiological Principle of Infectious Hepatitis and Homologous Serum Jaundice. *Am J M Sc* 214: 483 (Nov.) 1947.

3 (a) Paul J R, Havens W P, Jr, Sabin A B and Philip C B. Transmission Experiments in Serum Jaundice and Infectious Hepatitis. *J A M A* 128: 911 (July 28) 1945. (b) Neefe J R and Stokes J Jr. An Epidemic of Infectious Hepatitis Apparently Due to a Water Borne Agent. *Epidemiologic Observations and Transmission Experiments in Human Volunteers* *ibid* 128: 1063 (Aug 11) 1945. Havens W P Jr. The Etiology of Infectious Hepatitis *ibid* 134: 653 (June 21) 1947.

4 (a) Probert A S. Hepatitis After Prophylactic Serum. *British M J* 2: 677 (Sept 24) 1938. Neefe J R, Stokes J Jr, Reinhold J G, and Lukens F D W. Hepatitis Due to the Injection of Homologous Blood Products in Human Volunteers. *J Clin Investigation* 23: 836 (Sept.) 1944. (b) Findlay G M, Martin N H and Mitchell J B. Hepatitis After Yellow Fever Inoculation. Relation to Infective Hepatitis. *Lancet* 2: 364 (Sept. 16) 1944.

5 (a) Findlay G M and Martin N H. Jaundice Following Yellow Fever Immunisation. Transmission by Intranasal Instillation. *Lancet* 1: 678 (May 29) 1943. (b) Footnote 3.

6 Leibowitz S, Greenwald L, Cohen I and Litwins, J. Serum Hepatitis in a Blood Bank Worker. *J A M A* 140: 1331 (Aug 27) 1949.

7 Sawyer W A, Meyer K F, Eaton M D, Bauer J H, Putnam P and Schwenker F F. Jaundice in Army Personnel in the Western Union of the United States. Its Relation to Vaccination Against Yellow Fever. Parts II, III and IV. *Am J Hyg* 40: 35: 107 (Jul.) 1944.

From the Permanente Hospitals (Dr Kuh) and Cutter Laboratories (Dr Ward).

1 Neefe, J R. Recent Advances in the Knowledge of "Virus Hepatitis." *M Clin North America* 30: 1407 (Nov.) 1946.

Meyer and his workers⁷ also made the incidental but important report that "a technician, R M H, working in a military laboratory, in California, developed jaundice late in October 1942. She had not been vaccinated against yellow fever, but during the preceding five months she had done over 1,000 icterus index determinations on sera from patients suffering from postvaccination jaundice. It was learned that during the early part of August she had on two occasions accidentally sucked some of the serum into her mouth." This is the first known report of an apparent occupational case of virus hepatitis reputedly acquired orally.

Except for these reports by American authors all the other references to occupational hepatitis that we have read in the literature are by British writers, but the articles are scattered and, like the American reports, no one seems to have paid much attention to them.

The first British reference is that of Findlay, Dunlop and Brown,⁸ who recorded in 1931 "what was apparently the spontaneous infection of a laboratory worker with infective hepatitis. The patient (the laboratory worker) had been handling serums from patients with

rating serum from the blood of the patients for Kahn tests, also developed an identical hepatitis. These laboratory assistants worked in a different building from the VD treatment center and had no contact with the patients. None of these 6 cases had received any NAB injections, nor had they received any injections from unsterile syringes.

The author does not state whether or not there was contact between orderlies and the laboratory assistants, but we assume there was not. As in the Leibowitz and Meyer reports, Sheehan raised the question of contamination through cuts in the skin, for he concludes his paragraph with the statement, "The infection may possibly have passed through small accidental scratches on the skin of their hands." These references to occupational virus hepatitis in the literature are summarized in table 1.

POSSIBLE MODES OF TRANSMISSION IN OUR CASES

It would seem, then, well within the limits of probability that in any laboratory a worker who handles blood or its derivatives contaminated by the virus of human infectious hepatitis and who inadvertently gets some of this material on his hand and places his hand to his mouth might contract the disease. The infection

TABLE 1—Summary of References to Occupational Virus Hepatitis

Authorship	Date	Circumstances	No of Cases	Accredited Mode of Accidental Transmission
Findlay and others ^{4b}	1931	Laboratory worker handling patients' serums	1	Nasopharynx
Reported by London correspondent of THE JOURNAL ⁹	1943	Laboratory workers handling patients' serums	2 or more*	None stated
Sheehan ¹⁰	1944	3 orderlies treating syphilitic patients and 3 laboratory workers doing Kahn tests	6	Accidental scratches on skin of hands
Sawyer, Meyer and others ⁷	1944	English physician doing venipuncture American technician doing icteric indexes	1 1	Accidental finger prick with needle of syringe Orally through sucking serum into pipet
Leibowitz and others ⁶	1949	Blood bank worker	1	Accidental finger prick with needle of syringe

* As evidenced by use of plural term 'laboratory workers'.

infective hepatitis during an epidemic in Yorkshire. The incubation period of this case of 'laboratory infection' could not have been less than 34 or more than 41 days. If spontaneous infection did occur the agent most probably gained entrance through the nasopharynx."

The next British reference is a letter from the regular London correspondent of THE JOURNAL dated Jan 23, 1943.⁹ Reporting on "Infective Hepatitis in the War" and discussing also postinoculation jaundice, the correspondent said "children and others passively immunized with mumps and measles convalescent serum have developed similar jaundice, which they have sometimes transmitted to contacts and laboratory workers handling serum from patients with the disease."

Again from London a year later, in an article to substantiate that hepatitis in patients being treated for venereal disease was not necessarily caused by the therapeutic arsenicals, Sheehan¹⁰ wrote

Further evidence that NAB (neoarsphenamine) is not the significant factor (in causing the disease) comes from the incidence of hepatitis during a year in personnel handling the blood of syphilitic patients in a clinic where many of these patients were incubating hepatitis. Three orderlies, who had helped in the actual injections and frequently had their hands contaminated with blood from the patients, developed hepatitis, which was in no way distinguishable from hepatitis following NAB. Three laboratory assistants, who had the duty of sepa-

might also be transmitted through already existing cuts or open wounds of the skin. Direct absorption through the intact skin might be considered a possible though improbable route. To rule it in or out would require experimental research, which apparently has never been attempted.

Another accidental route, the conjunctival sac, has been mentioned, but there is no experimental evidence in support of this mode of entry. Furthermore, from an occupational point of view the conjunctival route would offer no problems of epidemiology or prevention different from those of the oral route. American workers^{3a} and one group of British authors^{3b} have reported the successful experimental transmission of hepatitis through nasal washings. This method of transmission may be important in the present discussion because of the possible intranasal spread of the disease to workers handling dried or powdered blood derivatives.

A careful survey of workers handling human blood at Cutter Laboratories brings out no unusual hazard. The only additional hazard which does not occur in the usual hospital or clinic laboratory consists of handling dried plasma or dried blood derivatives. However, there is no indication that this is any greater hazard than the handling of whole blood itself. It should be emphasized at this point that plasma which is marketed as plasma is sterilized by ultraviolet rays. In other blood derivatives that leave Cutter Laboratories either the virus is known to be inactive in the end product or a final sterilization takes place. Consequently, hepatitis

⁸ Cited by Findlay, Martin and Mitchell^{4b}

⁹ Infective Hepatitis in the War, Foreign Letters, J A M A 121: 878 (March 13) 1943

¹⁰ Sheehan, H L. Epidemiology of Infective Hepatitis, Lancet 2 (July 1) 1944

did not develop in any person who handled plasma exclusively or its fractions in final market containers

As to possible modes of transmission in our cases, what we have to say is in the realm of conjecture, but some inferences may be drawn. Table 2 gives essential data concerning all 7 cases of hepatitis, including severity of the disease, the material to which the worker was exposed and the floor of the laboratory on which he worked at the time of illness. Several male workers exhibited cuts on their hands from handling heavy equipment, which may have been portals of entry. Obviously women at work in a supervisory capacity or doing research handle no heavy equipment, and no cuts were observed on their skin. At no place in the work routine are needles or sharp surgical instruments encountered. Contamination of the hands is possible when one handles plasma and other materials. Such operations might also serve to produce droplets containing organisms that could enter the body through the nasopharynx or even the conjunctival sac.

Several of the workers smoke on the premises but away from work, and contamination of the mouth from the hands might be possible. Although laboratory workers as a class are careful and presumably wash

their hands at critical moments, lapses in technic are possible. Rubber gloves are now supplied to the workers. During that time have averaged 100,000, 400,000 and 700,000) has been 5.0, 7.8 and 21.4, respectively. In other words, the 4 cases in 1949 at Cutter Laboratories in Berkeley, whose employment census is about 700, almost equal the average annual number of 5 cases in that city of 100,000 population. The case rate per 100,000 population in Oakland and Alameda County (2.0 and 3.1, respectively) is less than the rate of 5.0 in Berkeley, so further comparison of the incidence in these other localities with the incidence at Cutter Laboratories would be even more striking. These figures strongly suggest, despite the small number of cases involved, that the laboratory infections were related to some extraneous factor in the environment possibly associated with employment. Of course, unreported cases, if any, in the community would modify the data.

There is no evidence that the workers in the blood handling department had a greater sickness propensity than other Cutter Laboratory workers that might have made them, as a group, prone to hepatitis infections. In table 3 we indicate, for example, that the annual disability rate in the two and a half year period from January 1947 through June 1949 was essentially the

TABLE 2—Data on 7 Cases of Virus Hepatitis in Workers Exposed to Blood and Its Derivatives

Case *	Sex	Age at Time of Illness	Month of Onset	Jaundice	Duration of Illness	Hospitalized	Material to Which Worker Was Exposed	Floor of Laboratory
1	F	23	December 1946	Yes	6 wk	No	Whole blood and plasma	2d
2	M	32	January 1947	Yes	2 wk	No	Plasma and derivatives	2d
3	F	30	January 1947	Yes	6 wk	No	Whole blood and plasma	2d
4	M	30	February 1949	Yes	6 mo	Yes	Plasma and all derivatives	2d
5	F	23	March 1949	Yes	6 mo	Yes	Plasma exclusively	1st
6	M	30	July 1949	Yes	6 mo	Yes	Plasma and derivatives	1st and 2d
7	M	31	July 1949	Yes	2 mo	Yes	Plasma and derivatives	1st and 2d

(Cases 1, 2, and 3 comprised the first outbreak; cases 4, 5, 6, and 7 the second outbreak.)

same for workers in the blood handling department as for workers in the penicillin department. Except for 1 worker who had donated blood, none of our patients gave a history of recent inoculation or blood withdrawal.

CLINICAL MATERIAL

The hepatitis occurred in 3 women and 4 men, who varied in age from 23 to 39 years. Clinically these infections did not differ materially from other reported

TABLE 3—Days Lost from Sickness in Blood Handling Department Compared with Penicillin Department from January 1947 Through June 1949

	Blood Handling	Penicillin
Total number of persons who worked	70	131
Total number of months worked	549	1,079
Total number of days out for illness	237*	50
Days lost per employee	4.1*	4.5
Days lost per employee per year (disability rate)	1.6*	1.8

* Exclusive of hepatitis cases.

After the blood has been through the desiccation room it is possible that the finely powdered fractions might contaminate the mouth and face of workers. In general, both parenteral and oropharyngeal routes of infection now appear to be possible in the workers' environment, although in the past it was scarcely dreamed that such avenues existed. The cases illustrate a truism: unsuspected hazards may exist in any environment.

Assuming that two different viruses or strains of virus are responsible for the disease, we can only guess with which we are dealing. Apparently either the IH or SH virus could be present in random blood specimens coming to a commercial laboratory.

Of course, worker to worker transmission in our cases cannot be categorically excluded. Against its occurrence is the dispersal of infected workers over a large work area on two floors of the building. No known cases have occurred in other departments or in the families of any of the infected workers.

If our cases were due to a carrier in the department we might expect more cases to have occurred. As it is, including turnover, approximately 1,200 persons have been employed handling blood products since this program was begun at Cutter Laboratories. Consequently, many have escaped the disease.

Against our cases being of the naturally occurring disease is the fact that the average number of cases of infectious hepatitis for the past five years in Berkeley, Oakland and Alameda County (whose respective popu-

lations during that time have averaged 100,000, 400,000 and 700,000) has been 5.0, 7.8 and 21.4, respectively. In other words, the 4 cases in 1949 at Cutter Laboratories in Berkeley, whose employment census is about 700, almost equal the average annual number of 5 cases in that city of 100,000 population. The case rate per 100,000 population in Oakland and Alameda County (2.0 and 3.1, respectively) is less than the rate of 5.0 in Berkeley, so further comparison of the incidence in these other localities with the incidence at Cutter Laboratories would be even more striking. These figures strongly suggest, despite the small number of cases involved, that the laboratory infections were related to some extraneous factor in the environment possibly associated with employment. Of course, unreported cases, if any, in the community would modify the data.

The presenting symptoms were variable. One patient was first seen for urticaria. He also complained of an upset stomach, stiff neck and diarrhea, which were thought to be on an allergic basis. He was seen again three weeks later, when his symptoms were right upper abdominal quadrant pain of two weeks duration, feverishness in the evening, intolerance of fatty foods, anorexia, nausea and burning of the throat. He

had noted buff stools and amber urine. He gave no history of inoculations of any kind but stated there had been other cases of jaundice at the laboratory.

A second worker came to the outpatient department because of malaise, slight aching and stiffness of joints and slight nausea. There was no vomiting or diarrhea. A week previously he had two loose bowel movements of buff color and noted dark urine. For the past four days his wife had noted that his eyes were yellow. He had received no inoculations, but four months earlier blood had been withdrawn for donation.

The third employee complained of dizziness of five days' duration, constantly present and worse on sudden movement. Urine was noted to be dark at the onset of illness and to become progressively darker. There was anorexia without nausea or vomiting.

On physical examination two of the patients exhibited icterus of skin and scleras and an enlarged, tender liver. The third showed slight icterus of the scleras but no signs referable to the liver. All were hospitalized with a diagnosis of homologous serum hepatitis, probably of occupational origin.

In all 3 cases on admission results of blood cell counts, including differential count, Kline test and routine urinalysis were normal. The normal differential count tended to rule out infectious mononucleosis. Bile was present in the urine on admission but was not seen during the recovery phase. Urobilinogenuria was variable, in the sickest patient it was only slightly elevated, but in another the test remained positive throughout hospitalization at significantly high dilutions, varying between 1:40 and 1:60. Maximum icteric indexes in the 3 patients were 41.2, 83.1 and 101.0 units, and the degree of hyperbilirubinemia paralleled the severity of the illness.

Thymol turbidity rose to a level of 10 to 14 units in the mildly and moderately ill patients, then gradually subsided to normal. In the severest case it reached a maximum of 42 units, which corresponded practically with the height of the illness.

Prothrombin time was determined in the 2 more severely ill patients, in whom it dropped to as low as 16 per cent of normal in one and 30 per cent of normal in the other. Cephalin flocculation on admission was elevated in all 3 patients, namely, between 2 plus and 4 plus in twenty-four hours and either 3 plus or 4 plus in forty-eight hours. It gradually subsided to 1 plus or 2 plus. The albumin-globulin ratio showed slight reversal, except in the sickest patient, in whose case the serum albumin became as low as 3.0 Gm and the globulin rose to 6.2 Gm per hundred cubic centimeters of serum. The oral hippuric acid test was done in only 1 patient and showed a slight diminution in excretion. Plasma cholesterol was within normal limits in all cases, esters varying between 55 and 65 per cent. Sulfobromophthalein sodium retention was not determined until near the end of the illness, when it was elevated in all patients and as high as 30 in 1 of them, it tended toward normal in all 3 as convalescence progressed.

Spot roentgenograms of the gallbladder area did not reveal stones except in the mildest case, in which numerous large ones were revealed. However, it is believed that the stones played no role in the illness of the patient because of his relatively rapid recovery, absence of pain, and laboratory evidence of hepatitis.

The 3 patients were hospitalized from twenty-one to sixty days. Treatment comprised bed rest, a high protein, high carbohydrate and low fat diet, choline, vitamin supplements and symptomatic relief. In 1 patient aureomycin therapy was tried without any evident effect on the course of the disease. All patients were subsequently followed in the outpatient department. Convalescence as a rule was slow, the patient complaining chiefly of fatigue. Time off from work varied from two to six months. In a situation where workers are constantly exposed to a possible source of infection there are no clues as to the length of incubation period in these cases.

COMMENT

One might reasonably ask why, in view of the enormous amounts of human blood handled in hospitals, clinics and laboratories throughout the world, occupational cases of virus hepatitis seem so few and far between. Apparently many variables are involved in

the transmission of the disease,¹¹ including the type, virulence and quantity of virus, its admixture with antibodies, the size of the infecting inoculum, the mode of transmission, the environment and the susceptibility of the host, the last-mentioned variable involving such factors as fatigue, age and the effect of various hepatotoxins. The element of infectiousness of individual or pooled blood may vary with the time of blood withdrawal in relation to onset of incubation or to the time elapsed after the fully developed disease has subsided. Then again, virus IH may be more effective in producing disease when transmitted orally than parenterally, whereas virus SH may be more effective parenterally. It is possible that an infection will take place only on the simultaneous occurrence of certain favorable conditions, this might explain the relative rarity of laboratory cases, as well as the lapse of two years between the two small outbreaks at Cutter Laboratories.

Another reason for scarcity of reports may be that sporadic cases are considered the naturally occurring disease. Cases without jaundice may have gone unrecognized. We ourselves might not have been aware of the occupational implications had we not been face to face with a number of cases from one work area. Differences in degree of exposure and in manufacturing techniques, of which we are not aware, may also play a role.

PREVENTION

We believe that evidence at hand indicates that any worker in a laboratory handling blood for any purpose whatsoever as in the common procedure of Wassermann or Kline testing, should avoid getting the blood on his hands. History taking to identify the blood of persons who have had hepatitis may avail little or not at all, because of the existence of subclinical cases or clinical cases without jaundice. A technician drawing blood from a person actually ill with virus hepatitis should consider the advisability of wearing gloves. In any event it is important to wash one's hands after exposure to human blood or blood products. Neefe¹ has suggested that all specimens of blood, urine and feces from a patient with virus hepatitis should be labeled infectious and handled cautiously.

Prophylactic treatment of exposed workers with periodic injections of immune globulin¹² is a measure now in use at Cutter Laboratories. Any person who knows that he has accidentally contaminated himself with potentially dangerous blood or serum might advisedly submit to an injection of immune globulin. Where dried fractions are produced in the process of manufacture, proper precautions should be employed to prevent workers from inhaling potentially infectious material.

At the present time experiments are being conducted to sterilize plasma through the use of nitrogen mustard.¹³ One disadvantage of this treatment is that the prothrombin time is prolonged. Other chemicals have also been tried for this purpose. The value of ultraviolet rays for sterilizing blood fractions is controversial because of possible physicochemical alteration of the

11 Epidemic Hepatitis or Catarrhal Jaundice, editorial J. A. M. A. 123: 636 (Nov. 6) 1943. Sapero J. J. and Butler F. A. Highlights on Epidemic Diseases Occurring in Military Forces in the Early Phases of the War in the South Pacific. *ibid.* 127: 502 (March 3) 1945. Brightman, I. J. and Korns R. F. Homologous Serum Jaundice in Recipients of Pooled Plasma. *ibid.* 135: 268 (Oct. 4) 1947. Neefe¹.
12 Stokes J., Jr., Blanchard M., Neefe J. R., Gellis S. S. and Wade G. R. Methods of Protection Against Homologous Serum Hepatitis. I. Studies on the Protective Value of Gamma Globulin in Homologous Serum Hepatitis SH Virus. J. A. M. A. 138: 336 (Oct. 2) 1948.

13 Hartman, F. W., Mangun, G. H., Feeley, N., and Jackson E. On the Chemical Sterilization of Blood and Blood Plasma, *Proc. Soc. Exper. Biol. & Med.* 70: 248 (Feb.) 1949.

fractions, but their use for sterilizing plasma¹⁴ is an accepted fact with wide commercial application

The many measures advocated for protection of the person receiving an injection of blood, a blood derivative or vaccine are well recorded¹⁵ and are not mentioned in this discussion since we are dealing exclusively with the apparent occupational hazard to personnel in the medical and allied professions

SUMMARY

A distinction is made between the accidental transmission of virus hepatitis to a person receiving an inoculation and the occupational hazard to the physician or other person giving the injection. A similar type of occupational hazard may exist for the worker in a laboratory in the mere act of handling contaminated blood or blood derivatives

Seven cases are reported of virus hepatitis in laboratory employees who were presumably exposed to a source of infection at work. Pertinent literature on occupational hepatitis is reviewed, and possible modes of infection are discussed. Some of our patients may have become infected accidentally through the parenteral route, others through the oropharyngeal route. Methods of prevention are also indicated. An occupational hazard apparently exists for physicians, nurses, technicians and persons handling human blood in any laboratory, hospital or clinic

PENICILLIN-SILVER NITRATE PROPHYLAXIS AGAINST GONORRHEAL OPHTHALMIA OF THE NEWBORN

Preliminary Report on Use of Penicillin and Silver Nitrate
Combined and of Silver Nitrate Alone

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and

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After Crede's¹ initial introduction of silver nitrate as a prophylaxis against ophthalmia neonatorum in 1881, the incidence of this disease and its complications in the newborn infant diminished markedly. This was especially true of gonococcal conjunctivitis. However, despite this significant reduction, neonatal gonorrheal ophthalmia continues to present a problem today, especially in populated areas where there is a high incidence of gonorrheal infection.

The persistence of this disease in particular has led to much criticism during recent years concerning the efficacy of the continued use of silver nitrate as a prophylactic agent. Extensive investigation is now under way in an effort to discover either an adequate substitute or a suitable supplement. With the advent of the

newer bacteriostatic and antibiotic compounds, such as the sulfonamides and penicillin, this search has become more intensified.

In 1943 at Harlem Hospital, Gleich and his associate² introduced a simplified method of treatment of gonorrheal ophthalmia of the newborn by means of chemotherapy in the form of oral doses of sulfathiazole. They found that an average total dose of 14 grains (0.91 Gm.) of sulfathiazole was required to cure gonococcal conjunctivitis. The same authors³ in 1944 demonstrated the prophylactic value of the combined

TABLE 1—Incidence of Gonococcal Conjunctivitis in Infants Receiving Sulfathiazole Prophylactically and Infants Not Receiving the Drug (Feb. 1 1943 to Feb. 1 1944 Inclusive)

	No. of Infants	No. with Gonococcal Conjunctivitis
Sulfathiazole given prophylactically	1,475	2
No drug given	1,262	6
Total	2,737	8

oral administration of sulfathiazole and local application of silver nitrate against gonococcal conjunctivitis. In their series of cases a total of 1,425 newborn infants received the combined prophylaxis. Of this number gonorrheal infection developed in the eyes of 2, or 0.14 per cent. In a control group of 1,262 newborn infants who received silver nitrate but no sulfathiazole, 6, or 0.47 per cent, became infected. Thus gonococcal conjunctivitis occurred approximately three times as frequently in the control group as in the infants given sulfathiazole prophylactically (table 1).

In 1945 however, the routine use of the combined sulfathiazole-silver nitrate prophylaxis was discontinued at Harlem Hospital despite the apparently good results. The possibility of the subsequent development of sulfonamide-fast or resistant organisms precipitated such a course of action. The statistics during the next three years (1945, 1946 and 1947) proved noteworthy. The incidence of the disease during this period again became comparable to that in previous years, before the introduction of the combined method of prophylaxis. In

TABLE 2—Gonorrheal Ophthalmia in Newborn Infants After Sulfathiazole-Silver Nitrate Prophylaxis Was Discontinued and Silver Nitrate Alone Employed (1945, 1946 and 1947)

Year	No. of Infants	No. with Gonococcal Conjunctivitis
1945	2,628	3
1946	2,916	8
1947	4,186	11
Total	9,730	22

1945 there were 3 cases of gonorrheal ophthalmia among a total of 2,628 newborn infants. Of 2,916 infants in 1946, gonococcal conjunctivitis developed in 8. The total increased to 11 of 4,186 infants in 1947 (table 2). These figures clearly revealed the importance of the prophylactic value of combined chemotherapeutic agents and the apparent necessity for their continued use in controlling the incidence of gonorrheal ophthalmia. For these reasons the following investigation was undertaken.

2 Blumberg M. and Gleich M. The Simplified Treatment of Gonococcal Ophthalmia Neonatorum with Chemotherapy. J. A. M. A. 123:132 (Sept. 18) 1943.

3 Gleich M., Blumberg M. and Mason A. Prophylactic Value of Sulfathiazole Against Neonatal Gonococcal Conjunctivitis. Am. J. Dis. Child. 31:162 (June) 1944.

14 Blanchard M. C., Stokes J. Jr., Hampil B., Wade B. R. and Spitznagel J. Methods of Protection Against Homologous Serum Hepatitis. II. The Inactivation of Hepatitis Virus SH with Ultraviolet Rays. J. A. M. A. 138:341 (Oct. 2) 1948.

15 Rappaport, E. M. Hepatitis Following Blood or Plasma Transfusion. Observations in 33 Cases. J. A. M. A. 128:932 (July 28) 1945. Scheinberg I. H., Kinney T. D. and Janeway C. A. Homologous Serum Jaundice. A Problem in the Operation of Blood Banks. Ibid. 134:841 (July 5) 1947. Syringe Transmitted Hepatitis. Editorials. Ibid. 129:278 (Sept. 22) 1945. 139:459 (Feb. 12) 1949. Neefe.¹

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Valuable assistance and helpful suggestions were rendered by the following in this study: Dr. S. Weintraub, head of the Pathology Department; Dr. H. Minsky, attending Ophthalmologist; Dr. Alvin Mason, clinical assistant; Mr. P. Steinberg, chief bacteriologist; Miss L. Pagan and Miss B. Phillips, historians of medical records; and Mrs. E. Griffith, typist.

¹ Crede. Die Verhütung der Augenentzündung der Neugeborenen. Arch. f. Gynaek. 17:50 1881. Ibid. 18:367 1881.

METHOD

On June 1, 1948, a study was begun on newborn infants at Harlem Hospital in an effort to prove the value of the combined intramuscular administration of penicillin and local application of silver nitrate as a prophylaxis against gonorrheal ophthalmia. The routine instillation of silver nitrate into the conjunctival sacs of all newborn infants was supplemented by an intramuscular injection of penicillin. Silver nitrate (1 drop of 1 per cent solution in each eye) prophylaxis was carried out in the delivery room. On reaching the nursery, each infant was given an intramuscular injection (in the buttocks or the deltoid region) of 50,000 units of aqueous penicillin G (50,000 units dissolved in 1 cc of distilled water).

Each infant was observed closely for the five to seven day hospital period. Any discharge from the eyes was smeared and cultured for three successive days, and the infants were immediately isolated. At the time of the mother's discharge from the hospital she was given explicit instructions to return with the infant to the pediatric emergency unit and the pediatric follow-up clinic should he have a discharge from the eyes after his release from the hospital.

TABLE 3—Gonorrheal Ophthalmia in Newborn Infants Receiving Intramuscular Injection of Penicillin Combined with Local Instillation of Silver Nitrate (June 1, 1948 to June 1, 1949)

Year	No of Infants	No with Gonococcal Conjunctivitis
1948-1949	4,565	0

TABLE 4—Organisms Occurring on the Conjunctivas of Newborn Infants Receiving Penicillin-Silver Nitrate Prophylaxis (June 1, 1948, to June 1, 1949)

Group Organisms	Cases	%
Gram positive cocci	20	66.6+
Gram positive rods	5	16.6+
Gram negative rods	5	16.6+
Total	30	100

RESULTS

Between June 1, 1948 and June 1, 1949, a total of 4,565 newborn infants received the combined penicillin-silver nitrate prophylaxis. Not a single proved case of gonococcal conjunctivitis was observed (table 3).

However, in a few instances varying degrees of chemical irritation were noted after local instillation of silver nitrate. This was manifested by the development of a mild to profuse purulent discharge from one or both eyes, with or without associated redness and swelling of the eyelids. These reactions were evident in the first forty-eight hours of life and persisted for two to four days and in some instances for longer periods. Routine smears and cultures taken during this period revealed a variety of organism groups. In 30 cases gram-positive cocci predominated in the largest percentage while gram-positive and gram-negative rods constituted smaller percentages in comparison (table 4).

The persistence of these organisms, especially the gram-positive cocci group, despite the combined chemotherapeutic prophylaxis cannot be fully explained. Allen and Berrere⁴ in a recent paper noted a higher occurrence of gram-positive organisms in silver nitrate-treated eyes than in penicillin-treated eyes. No particular explanation was given.

⁴ Allen, J. H., and Berrere, L. E. Prophylaxis of Gonorrheal Ophthalmia of the Newborn, *J. A. M. A.* 141: 522 (Oct 22) 1949.

Included in our series of cases was 1 proved case of severe *Hemophilus influenzae* conjunctivitis treated successfully with sulfadiazine and streptomycin. No complications developed. In another instance a gram negative *Diplococcus* belonging to the *Neisseria* group was cultured on routine examination. However, subcultures failed to identify this organism as *N. gonorrhoeae*. Repeated smears and cultures likewise proved fruitless. No cases of inclusion blennorrhea were identified in any infant during his period of hospitalization. Since the incubation period for this disease according to Gifford⁵ is five to seven days after birth, it is possible that in some cases it might have developed after the infant's release from the hospital. It is likely that this did not occur with any great degree of frequency since such cases were not discovered on follow-up.

No serious sequelae were noted as a result of the intramuscular injection of penicillin.

COMMENT

With the discovery of penicillin, many investigations were undertaken in an effort to prove its effectiveness in the treatment of ocular complications. Thus, its value both locally and parenterally in the treatment of gonorrheal ophthalmia was shown. Griffey⁶ in 1944 first employed intramuscular injection of penicillin successfully in the treatment of gonococcal conjunctivitis. McCulloch and Dyson⁷ and later Lewis⁸ used penicillin both locally and parenterally to good advantage in the treatment of gonorrheal ophthalmia.

In a preliminary report in 1947 Franklin⁹ made a clinical comparison of penicillin and silver nitrate as a prophylaxis against ophthalmia neonatorum. As a result of this initial study, which was corroborated later by bacteriologic analyses, he stated that penicillin compared favorably with silver nitrate as a prophylactic agent. Penicillin prophylaxis, according to him, was preferred because of the following observations: (1) the reduced danger of permanent injury to the eyes; (2) the nonpainful instillation and (3) the lessened incidence of other ocular complications during the first days of life.

Allen and Berrere⁴ found penicillin to have no particular advantage over silver nitrate in the prophylaxis against gonorrheal ophthalmia. However, their conclusion was based on facts taken from a population in which there is a low incidence of gonorrheal infection in general. This, of course, made an adequate and true comparison impossible. They recommended similar controlled studies in a population in which a higher incidence of gonorrheal infection exists.

The results obtained from our study are indeed encouraging. Not only was the occurrence of gonorrheal ophthalmia apparently eliminated but the occurrence of other common neonatal complications appeared reduced to some extent.

SUMMARY

The incidence of gonorrheal ophthalmia in newborn infants at Harlem Hospital was appreciable before the use of combined oral administration of sulfathiazole and local instillation of silver nitrate prophylaxis. With

⁵ Gifford, S. A. *Textbook of Ophthalmology*, ed. 3, Philadelphia: W. B. Saunders Company, 1945, p. 121.

⁶ Griffey, W. P. Penicillin in the Treatment of Gonorrheal Conjunctivitis, *Arch. Ophth.* 31: 162 (Feb.) 1944.

⁷ McCulloch, R. J. P., and Dyson, C. Gonococcal Conjunctivitis Treated with Penicillin, *Canad. M. A. J.* 52: 284 (March) 1945.

⁸ Lewis, P. M. Penicillin in Gonococcal Conjunctivitis: Its Use in 30 Cases Compared with the Sulfonamides in 173 Cases, *Am. J. Ophth.* 29: 694 (June) 1946.

⁹ Franklin, H. C. Prophylaxis Against Ocular Neonatorum, *J. A. M. A.* 134: 23 (Aug. 9) 1947.

the institution of this combined chemotherapeutic prophylaxis, the incidence of gonococcal conjunctivitis was reduced considerably. After the discontinuance of this routine method of prophylaxis the incidence of gonorrheal infection in the eyes of newborn infants again became comparable to that in previous years. A study carried out for a period of one year (June 1, 1948 to June 1, 1949) demonstrated again the prophylactic value of combined chemotherapeutic agents (penicillin and silver nitrate) against neonatal gonococcal conjunctivitis. As a result of this investigation it is suggested that the combined intramuscular-local method of prophylaxis be continued until sufficient data are available for a more adequate evaluation.

HEALTH INSURANCE PLAN OF GREATER NEW YORK

The First Three Years

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After several years of nationwide study, a significant experiment in group practice under a voluntary prepayment plan, which was launched in New York in March 1947, is revealing an extraordinary amount of hitherto unavailable information concerning the utilization of medical services by a completely insured population.

ORGANIZATION

The Health Insurance Plan of Greater New York is a community-sponsored, voluntary medical care plan incorporated under the New York State Insurance Law as a nonprofit agency. It is not intended to be merely another medical insurance company. Its purpose is to provide comprehensive medical services to workers and their families through medical teams which assume full responsibility for medical care of the group in return for distribution of the premium income in the form of capitation payments. It was hoped that in this manner comprehensive medical care—preventive, early diagnostic and curative—could be provided on a sound financial and actuarial basis and without any restrictions or supplementary charges.

The Board of Directors of the Health Insurance Plan includes the mayor and high officials of the municipal government, the heads of two of the largest banks, important leaders of private industry, representatives of the Congress of Industrial Organizations and the American Federation of Labor and eight physicians selected for their professional or administrative experience, two of whom are the administrative heads of medical schools (Columbia University College of Physicians and Surgeons and Long Island College of Medicine). The determination of professional eligibility of participating medical groups and of standards for their professional services is the responsibility of a Medical Control Board comprised of medical members of the Board of Directors and representatives of the participating medical groups, the New York Academy of Medicine and two of the larger county medical societies (New York and Kings). Matters which concern the relationship of participating physicians to the Health Insurance Plan and its subscribers are cleared through a Joint Conference Committee consisting of four physicians who are elected by the participating groups, one from

each major borough of the city, and four members of the Board of Directors, two of whom are physicians. The medical department of the plan is assisted by a division maintaining liaison between the physicians and the subscribers to facilitate the work of the medical groups. A Division of Research and Statistics constantly studies the utilization of services.

INSURANCE COSTS

In order to enable the lower paid workers to subscribe to the plan, the employer is required to pay half the premium. Unless the employer paid at least half, the lowest paid workers could not afford the high annual premium required to provide comprehensive care of high quality for them and their families. Workers with low incomes also require an incentive to join, for few can appreciate the value of complete medical coverage until they begin to use the service.

Enrollment in the plan is open to groups of twenty-five or more persons having a common employer, if at least 75 per cent join, also to employed groups of ten to twenty-five persons if 90 per cent agree to join and include their dependents. Most subscribers to the plan have been enrolled in family units. Workers earning up to \$5,000 a year and families with a total income which does not exceed \$6,500 pay the base premium rate.

In the first three years of operation it was found that many industrial and business organizations would not join unless all their workers were eligible, and labor unions often would not agree to the exclusion of a small segment of the labor force because of a higher salary level. It was found that workers earning more than \$5,000 constitute less than 5 per cent of the enrollable employees in these organizations. Accordingly, the rules were recently amended so that since Jan. 1, 1950 members of such employee groups whose wages are above \$5,000 may also be enrolled if they pay a premium 50 per cent higher than the basic rate.

For employed groups which have the so-called "family contract," the basic premium rate for a member without dependents is \$17 a year with an equal contribution by the employer, making a total of \$34 a year.¹ Couples pay double and families of any size pay three times the single rate; the employer in each instance contributing an equal amount. An unmarried worker's payroll deduction for complete medical care therefore amounts to 33 cents a week, couples pay 66 cents a week, and families pay three times the individual rate, or about \$1 a week, regardless of the size of the family. A family of fourteen pays the same premium as a family of three, which of course reduces the average return per enrollee to the plan. Payment to the medical groups for their services is not affected by the family size, for they are remunerated on a per capita basis. The medical groups receive \$23.04 for each enrollee in the low income group and (since Jan. 1, 1950) \$34.56 a year for each person earning above \$5,000 and each member of an enrolled family whose total annual income exceeds \$6,500.

A New York state law enacted in 1946 authorizes the City of New York to pay half the premiums for its employees who desire to enroll and for all dependent members of their families. Now in its fourth year of operation, the Health Insurance Plan is providing comprehensive medical care to more than 235,000 persons in their homes, at physicians' offices, at medical centers and in hospitals. In addition to employees of

¹ President and Medical Director, Health Insurance Plan of Greater New York.

¹ When workers join under an employee only contract the total annual premium is \$29.

the City of New York, the insured include the employees of the United Nations and of one hundred and fifty-one other business and industrial firms, labor unions and social welfare agencies within the city

MEDICAL GROUPS

The professional services are provided through twenty-eight medical groups situated in various parts of the city, each group having twenty-five or more members. The twenty-eight groups comprise 845 physicians, of whom 334 are general practitioners and 511 are internists, pediatricians and other specialists. The subscribers therefore have a wide selection of medical groups and of family physicians. To maintain a high level of service to subscribers and to open the plan to other physicians who desire to participate, additional medical groups are activated from time to time as enrollment increases.² In all groups, the chief of each of the twelve basic specialties must hold a certificate from an American specialty board or an appointment as attending or associate attending physician on the staff of a hospital approved by the respective specialty board for resident training in his specialty, or he must have equivalent qualifications.

The subscribers are entitled to general medical care, specialist and surgical care, preventive services, maternity and pediatric care, all diagnostic laboratory procedures, roentgen examinations and roentgen therapy, radium and radon treatment, physical therapy, administration of blood and plasma, and psychiatric advice and guidance but not prolonged treatment. They are also entitled to visiting nurse services in their homes and to ambulance transportation. No additional charge is made for any service except for night calls between 10 p m and 7 a m, for which a fee of \$2 may be collected by the medical group. Many of the groups ignore this unless there is abuse. All types of illness and disability are covered, including preexisting conditions. There are no physical examinations for admission and no age limits or waiting periods. The cost of hospitalization is covered by a separate Blue Cross or commercial hospital insurance contract, which all subscribers must carry.

Not included are treatment for drug addiction, acute alcoholism or chronic conditions, such as mental disease and tuberculosis, which require care in an institution other than a general hospital. Drugs, dentistry, prosthetic appliances, eyeglasses and purely cosmetic surgical measures are not covered. For exceptional procedures such as brain surgery, fenestration surgery for deafness and operations for congenital heart disease, the groups reinsure themselves through a special reserve fund, which engages some of the best surgeons in the city for the care of these patients and thereby relieves the groups of this unusual and unpredictable responsibility and expense. The cost of radium and radon is also paid from this central fund.

When a subscriber enrolls, he selects one of the several medical groups serving the county or area in which he lives. He then selects one of the general physicians in the medical group as his personal or family physician, who in turn arranges for all necessary specialist or laboratory services.

The medical groups are individually organized as partnerships and are completely autonomous, except that they must possess the physical facilities and meet the organizational pattern and professional requirements of the Health Insurance Plan's Medical Board. The

required physical standards vary with the number of subscribers enrolled in the groups; there are three categories, less than 5,000, between 5,000 and 10,000 and above 10,000. Three medical groups are serving more than 20,000 subscribers each, and one group serves about 26,000.

INCOME TO PHYSICIANS FROM THE PLAN

Under the present capitation rates, the plan is making monthly payments to its medical groups at a rate of over \$5,520,000 a year for the care of its 235,000 subscribers, many of whom previously paid little or nothing for their medical care. Although still in its early promotional stage of development, costs of central administration are already down to less than 12 per cent, an additional 4 per cent of gross premium income is set aside for the legal reserve required by the State Insurance Department, and a similar amount is being withheld temporarily to cover indemnity for illnesses and accidents to subscribers away from home, for other possible contingencies and for amortization of the generous loans which were made at the outset by several philanthropic foundations to assist in establishment of the program.

A medical group on reaching its objective of 20,000 subscribers has a gross income of \$460,000 a year, more if better paid workers among the enrolled employees join in the future at the higher premium rate. The medical groups, in accordance with their partnership arrangements, remunerate their members by an annual salary, after defraying their operational costs. In addition, almost all the groups have accumulated reserve funds during the past year with which they intend to improve their medical center and extend the scope of their services.

After all operating costs of a group are defrayed, the average net income of its physicians for full time service is at least \$10,000 a year.³ Since younger physicians of the medical group who are on probation and are not yet partners receive less and senior members substantially more, it is believed that this is reasonably adequate compensation for medical services rendered to persons of moderate income, many of whom formerly received free care at clinics and hospitals or were treated by physicians at reduced fees or as charity cases. One large group pays young physicians a starting salary of \$7,500, when they become junior partners, after a year of trial, they receive \$10,000, senior partners are remunerated at the rate of \$17,000 to \$18,000 for full time service. In addition to their income from the Health Insurance Plan, the physicians affiliated with the groups derive additional income from noninsured patients and from services rendered in compensation cases of veterans and workmen. If upper income subscribers enroll after Jan 1, 1950 at the higher premium rate in the same proportion as they now exist in the currently enrolled employee groups (5 per cent), the average net income to physicians for full time service under the plan is expected to rise to about \$12,250 a year.

Only one medical group is partly manned by full time physicians and specialists who do not engage in private practice. In all other medical groups, most of the participating physicians give part time to the plan and almost all engage in a variable amount of individual private practice.

³ Full time service is defined as forty hours a week. This leaves sufficient time for additional private practice and for hospital or other extracurricular work.

² Three new medical groups have been activated since January 1.

ORGANIZATION AND EFFICIENCY OF GROUPS

Each medical group operates through a central administrative office and laboratory with a variable amount of office space for members of its staff. Eight groups have their basic clinical and laboratory services located in a complete health center, although many of the general physicians and some of the specialists in six of the eight (all but the New York University and Montefiore units) continue to see insured patients in private offices because these are located nearer the homes of their enrolled subscribers. In the remaining groups, the requirement of a complete health center to house the offices of the entire staff was waived temporarily because of low enrolment in the early days and because of the postwar shortages and high costs of building materials. All medical groups will now be required to meet the terms of their contract in regard to the establishment of a complete health center as soon as their subscriber enrolment reaches 10,000.

From the previous experiences of older groups in other parts of the country, it was estimated that twelve and a half full time physicians or an equivalent proportion of physicians on part time would be able to provide the medical services required by 10,000 persons, or one physician per 800 subscribers. This number has seemed to be adequate for most of the insured groups. Differences in the age-sex composition of a given group's enrolment, as well as the extra work necessary shortly after a new enrolment because of the backlog of previously unmet medical needs, are important factors in determining the required number of physicians, as is also the judicious use of auxiliary personnel, visiting nurses and optometrists to relieve the physicians of unnecessary labor.

It is already obvious that the caliber of work of the various medical groups is not uniform. The medical and research divisions of the Health Insurance Plan have recently completed a special survey of the staff operations and clinical services rendered by each of the twenty-six medical groups in operation before January 1, which revealed differences in performance. Four groups maintain the highest standards of service, nine other groups are not far behind, and there are gradations among the others. The groups are comprised of physicians and specialists who represent a good cross section of the reputable members of the medical profession of the city. It is our belief that a plan such as this, if it is to have broad application, should not depend too largely on medical groups at teaching hospitals, except that their professional work may be used to measure the performance of other groups. It must also be able to take an average sample of the physicians and specialists in the community and, by welding them together into a coherent medical group and gradually indoctrinating them with the ideals of modern preventive and curative medicine, enable them to provide medical care of better quality and of far broader social significance than they could as unsupervised physicians, practicing medicine in relative isolation.

The survey has disclosed deficiencies in all groups which would have gone undetected in ordinary private practice. Without any pressure from the Health Insurance Plan, revelation of these shortcomings to each medical group by the physician making the survey usually results in correction. The most effective means at the disposal of the Health Insurance Plan for elevating the standards of medical practice by all groups is to use the experiences of each group as yardsticks for measur-

ing the performance of the others. The technic of making these comparative measurements of the professional performance of medical groups will be published shortly by Dr. Henry Makover of the staff.

A recent study of 1,015 consecutive obstetric deliveries during the period July 1, 1948 to June 30, 1949 revealed no maternal deaths. Surgical intervention (cesarian section) was required in 27 per cent of the deliveries, compared with 47 per cent for the city of New York generally, the neonatal mortality was 9 per 1,000 live births, compared with 20 per 1,000 for the city as a whole during this twelve month period. This favorable experience occurred in spite of the fact that under the Health Insurance Plan the proportion of primiparas and multiparas 35 to 39 years of age was twice that reported for the city of New York, the proportion of multiparas over 40 was double and of primiparas over 40 was four times that for the city. In a similar manner, the experience of the plan in a variety of other clinical fields, such as preventive medicine, pediatric services and cancer detection, is being used as a yardstick for measuring the general adequacy of its medical services and for determining their costs.

Fears that the availability of unlimited medical services would be abused by subscribers have proved to be unfounded. In fact, continued education of subscribers is required in some instances to encourage more adequate utilization of the available services, especially among trades whose workers are generally of a low educational level.

Approximately 500,000 physician services (exclusive of those of radiologists and pathologists), from a home or office visit to a major operation, have been required per 100,000 subscribers per year. This is less than was anticipated. Of these, about 56 per cent have been rendered by general physicians and 44 per cent by specialists. The combined services of the general physicians, internists and pediatricians accounted for 69 per cent of all services. It is particularly interesting that the recently completed survey revealed little evidence of excessive referral of patients to specialists. Several medical groups, among them the one with the largest enrolment, require all children to be cared for by pediatricians from the time of birth to 12 years of age and relieve the general physicians of this responsibility. In all groups 98 per cent of all deliveries are performed by obstetricians.

Home calls constitute 12 per cent of all services. About 79 per cent of the medical services are rendered in the health centers of the groups or in the doctors' offices. Despite the Blue Cross incentive to hospitalization, laboratory services for hospitalized patients being paid in New York City by the Blue Cross and not by the Health Insurance Plan, one of the most surprising experiences has been that only 89 per cent of the total number of medical services have been rendered in hospitals. These statistics include every preoperative and postoperative visit to a hospitalized patient as well as the operative service itself, but not the services of radiologists or pathologists at either the group center or the hospital. The fact that 91 per cent of all medical services under a comprehensive prepayment plan are rendered outside of hospitals is a demonstration of the inadequacy of limited insurance coverage restricted solely to hospitalizable illness. It is an unanswerable argument in favor of coverage for comprehensive medical care.

In line with their present emphasis on preventive care twenty-three of the medical groups of the Health Insur-

ance Plan distribute informational bulletins to their subscribers periodically. These contain preventive information appropriate to the season and also advice on how to obtain the maximum benefit from the service. Through this means, more adequate utilization by subscribers of the groups' facilities for disease prevention and early diagnosis is being stimulated. Some groups are offering educational lectures to their enrolled subscribers.

SUMMARY

It may be appropriate to emphasize that the Health Insurance Plan of Greater New York is voluntary and, after three years of operation, financially solvent. As an experiment in providing prepaid medical care through group practice, it is furnishing preventive as well as early diagnostic and curative services of truly comprehensive scope to an insured population of more than 235,000 persons without financial deterrents to full utilization of physicians' services. The deficiencies revealed during this first period relate to details in operation which can be corrected as experience with the plan grows. The first three years have not revealed any need for changing the basic concepts of the Health Insurance Plan of Greater New York.

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THE PROBLEM OF SPASM IN SKELETAL MUSCLE

A Clinical and Laboratory Study

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The concept of skeletal muscle spasm is widely used despite the fact that a generally accepted definition of this term does not exist. Nevertheless, the clinical literature dealing with such diseases as poliomyelitis, arthritis, low back pain and many other conditions abounds with articles in which the term spasm is persistently used. It is commonplace on medical and orthopedic ward rounds and has even assumed medico-legal sanction. Such a commonly held concept ought to have a clear and concise pathophysiologic basis, easily understood and agreed on by all. Yet a search of the literature and especially of textbooks of physiology, neurology, orthopedics and medicine fails to reveal any but the vaguest explanations not only of the word spasm but even of the related concepts of tonus or tone.¹ To make matters worse, spasm is often confounded with rigidity, spasticity, spasms, contracture (histologic or physiologic) and cramp.

PURPOSE

This study was undertaken in an attempt to (1) investigate the meaning of the spasm concept and formulate a definition sufficiently inclusive and generally

acceptable, (2) discover simple means by which to demonstrate this condition objectively, and (3) determine whether there is by necessity a definite mutual cause and effect relationship between pain and spasm.

Formulation of Definition—Several factors must be taken into consideration as a basis for formulating a definition of spasm. There seems to be one common aspect in the spasm theory, namely, that it is an involuntary response (reflex spasm) to noxious stimuli, arising in either the muscle itself or some structure associated with it.² These structures may have either the same common nerve supply or a common dermatomal, myotomal or sclerotomal connection. Thus muscle spasm must be caused by initiated by or associated with impulses eventually transmitted to the muscle through its motor nerves (final common path). To state it differently, the existence or production of spasm requires all the components of at least a simple reflex arc. Thus, the peripheral manifestation of spasm does not differ basically from any other physiologic form of muscular contraction, as far as the muscle itself is concerned, it is normal contraction. According to current physiologic concepts, reflex or willed activity of skeletal muscle is associated with the production of propagated electrical potential changes called action or spike potentials,³ similar to those produced by heart muscle and recorded by the electrocardiogram. Resting muscle is electrically silent.⁴ Since neuromuscular activity is always associated with action potentials, the absence of such potentials is clearly indicative of the absence of muscular contraction and therefore, by definition, of spasm.

As a working basis we present the following tentative definition of spasm. Spasm in skeletal muscle is a reversible state of sustained, involuntary contraction, accompanied by muscular shortening and associated with electrical potential changes. This term should not be used unreservedly in conditions associated with well established organic lesions of the central nervous system.

Objective Demonstration of Spasm—Numerous attempts have been made to evaluate the presence of spasm objectively. Sometimes an examiner is content to diagnose spasm whenever the patient says he feels muscular pain and is reluctant to permit movement to take place. Digital and mechanical palpation of hardened, raised muscle contours plus observation of muscle shortening are the most frequently used clinical criteria. Many types of mechanical apparatus involving the use of pistons, springs, weights and compressed air have been devised to determine the resistance of muscle to deforming stresses and have been rapidly discarded as inadequate. Friction, condition of the skin and subcutaneous tissue, as well as the alignment between the palpating instrument, the muscle and the underlying bony structure against which pressure is exerted—all influence the final result. Such methods utterly fail to differentiate between conditions such as spasm, voluntary contraction, passive shortening, contracture,

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¹ Bing, R. translated and enlarged by W. Haymaker, from the German, ed. 5, *Textbook of Nervous Diseases*, St. Louis: C. V. Mosby Company, 1939. Wechsler, I. S. *A Textbook of Clinical Neurology*, Philadelphia, W. B. Saunders Company, ed. 5, 1943. Purves Stewart, J. *The Diagnosis of Nervous Diseases*, ed. 9, Baltimore: Williams & Wilkins Company, 1945.

² Elliott, F. A. *Tender Muscles in Sciatica*. *Electromyographic Studies*, *Lancet* 1: 47-49, 1944. Travell, J., Rinzler, S., and Herman, M. *Pain and Disability of the Shoulder and Arm*, *J. A. M. A.* 120: 417-422 (Oct. 10) 1942. Schlesinger, E. B. *Curare: A Review of Its Therapeutic Effects and Their Physiological Basis*. *Am. J. Med.* 1: 518-530, 1946.

³ Seyffarth, H. *The Behavior of Motor Units in Voluntary Contraction*. *Skrifter utgitt av Det Norske Videnskaps Akademi i Oslo I. Mat. Naturv. Klasse*, Oslo, Jacob Dybwad, 1940. Howell, W. H. *Howell's Textbook of Physiology*, edited by J. F. Fulton, ed. 15, Philadelphia: W. B. Saunders Company, 1946.

⁴ Hoefler, P. F. A. *Innervation and Tonus of Striated Muscle in Man*. *Arch. Neurol. & Psychiat.* 46: 947-971 (Dec.) 1941.

myxedema and fibrosis. Methods utilizing changes of resistance to stretch as an indication of spasm are similarly doomed to failure.⁵

For these reasons it was decided to use the most objective method available, namely, the evaluation by electromyography of electrical potential changes in the muscles involved. An electromyogram produced by muscle actively contracting for any reason, be it voluntary, reflex or artificial, will be basically similar. Therefore such a record does not give definite indication as to the cause or origin of these electrical potentials, differing in this respect from the electrocardiogram. Muscles shortened passively or shortened by contracture fibrosis, physiologic contracture⁶ or other mechanisms not associated with central nervous activity do not produce such potentials. The detection, suitable amplification and recording as well as the proper interpretation of these bioelectric potentials constitute the art and science of electromyography.

PROCEDURES

All experiments were performed on human subjects, either patients or laboratory personnel. We acted as subjects for the most painful procedures. Most of the records were made using surface electrodes and Grass ink-writing oscillographs. Control experiments were carried out using needle electrodes and a Dumont cathode ray oscillograph to rule out errors in instrumentation.

CLINICAL OBSERVATIONS

Low Back Pain—Forty-two patients with acute low back pain of diverse causation were studied. The term spasm is frequently used in connection with this condition. Many of these patients showed lists toward or away from the affected side. Indurated or elevated muscle contours could sometimes be palpated on the shortened, supposedly contracted side.

When electromyograms were taken from both sacrospinalis groups of the standing patient it was found that electrical activity existed on the convex side opposite the list and that the supposedly painful, contracted muscle on the concave side was actually electrically inactive (fig 1).⁷ This is a phenomenon of normal stance. Deviation from the vertical axis brings out a holding or antigravity activity opposite the direction of bending.⁸ Such activity was not present when the patient was prone and the need for antigravity postural activity removed.

Fractures and Direct Trauma—It is commonly accepted that the muscles around acute fracture sites are in a state of spasm.⁹ The amount of force necessary to separate overriding bone ends is often cited as proof of this axiom. The muscles around the fracture site of 8 patients with acute major fractures of long bones were examined both with surface and needle electrodes. These muscles generally showed no evidence

of spontaneous electrical activity, unless attempted active or passive motion of the affected area produced normal activity. Occasionally there appeared to be a state of inhibition. It may be difficult to get the patient to produce even a few action potentials by attempting voluntary movement of the painful part. Some freshly contused limbs were examined similarly, but again complete electrical inactivity was easily demonstrated.

Poliomyelitis—Over 100 children and adults hospitalized at the St. Louis City Hospital with acute poliomyelitis during the 1949 epidemic were checked. Needle electrodes were used in all patients clinically suspected of spasm. Only in 2 boys did we find persisting electrical activity in the sacrospinalis groups which could not be abolished in any position. Both had pronounced opisthotonos. The electrical activity was sustained, indistinguishable from normal activity and more pronounced with the patient supine than prone. This observation is compatible with the existence of spasm. Neither patient complained of pain, either at rest or when moved. A careful examination of the remainder of the patients with acute poliomyelitis failed to reveal any objective evidence of spasm as manifested by spontaneous electrical activity during the first fourteen days of the disease. This agrees with the observations of Buchthal and Højncke,¹⁰ whose

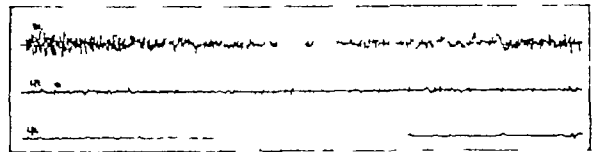


Fig 1—Electromyograms from right and left sacrospinalis patient M G standing with list to left. Operation showed disk lesion at the fifth lumbar vertebra. Pronounced antigravity activity on the right (inkwriter surface electrodes).

studies also showed that resting muscle in poliomyelitis is electrically quiet. This is true regardless of the degree of pain. Many of our patients manifested the commonly found resistance to passive stretching in some muscle groups. When these muscles were stretched without regard for pain, the well known cog-wheel phenomenon associated with short bursts of electrical activity was observed. Once such joints were completely extended they maintained the extended position and pain disappeared as did electrical activity. When the joint was flexed again this cycle could be fully repeated. Severe pain on stretching was repeatedly elicited in completely paralyzed muscles. This confirms observations by other investigators that such tightness and pain could not be influenced by full curarization.¹¹

LABORATORY STUDIES

EFFECT OF EXPERIMENTALLY PRODUCED PAIN

Ischemic Pain—The original experiment on ischemic pain was conducted in the early part of 1946 at the suggestion of Prof. Joseph Erlanger. The original Lewis technic¹² was followed. Circulation to the arm

5 Spiegel E A. Der Tonus der Skelettmuskulatur. Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie, no 51. 1927.
6 Gasser H S. Contracture of Skeletal Muscle, *Physiol. Rev.* 10: 35-109. 1930.
7 Harell A. An Electromyographic Study of 'Spasm' in Low Back Pain. Preliminary Report, read at the Twenty-Sixth Annual Session of the American Congress of Physical Medicine, Washington, D C. Sept. 9-14, 1948.
8 Bevor C. cited by Keith A. Menders of the Maimed. London: Oxford University Press. 1919. p 123.
9 Watson Jones, R. Fractures and Other Bone and Joint Injuries ed 2. Baltimore: Williams & Wilkins Company. 1941.
10 Buchthal F and Højncke P. Electromyographical Examination of Patients Suffering from Poliomyelitis Ant. Ac. up to Six Months After the Acute Stage of the Disease. *Acta med. Scandinav.* 116: 148-164. 1944.
11 Fox M J. Curare in the Treatment of Acute Poliomyelitis. *J A M A* 131: 278-280 (May 25) 1946.
12 Lewis T and Grant, R. Observations upon Reactive Hyperemia in Man. *Heart* 12: 73-120. 1925.

was occluded by a blood pressure cuff inflated to well above systolic pressure. Hyperventilation was avoided, and exercise of the forearm muscles was then continued until the pain became unbearable. The forearm muscles felt tender and tense, a condition simulating what clinicians call spasm. Yet with the subject properly positioned and relaxed the affected muscles showed

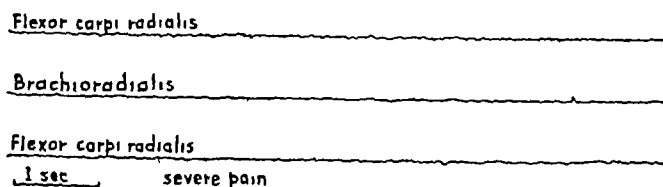


Fig 2—Electromyograms from wrist flexors subject A. H., just prior to cuff deflation. Note absence of electrical action potentials despite severe pain in forearm muscles (inkwriter surface electrodes).

no action potential activity (fig 2).¹³ Similar results were also obtained by Kugelberg,¹⁴ who noted absence of electrical activity even after as long as thirty minutes of ischemia.

Hypertonic Sodium Chloride Solution—Lewis and Kellgren¹⁵ reported experiments describing the production of severe pain with associated reflex spasm by the injection of minute amounts of sterile 6 per cent sodium chloride solution into connective tissue. When 0.1 to 0.5 cc of this solution is introduced into muscle a burning, tearing pain occurs which rises to a climax and subsides in about five minutes. Wolff and others¹⁶ stated that injection of 6 per cent hypertonic sodium chloride solution into the temporalis muscle would produce spasm in the homolateral trapezius muscle. Electromyograms were offered in evidence. We injected 6 per cent hypertonic sodium chloride solution into the temporalis, trapezius, abductor digiti quinti, rectus femoris, hamstrings, gluteus maximus and lumbar sacrospinalis muscles, the sacrococcygeal and interspinous ligaments, sacral periosteum and the sacroiliac and hip joints of well controlled subjects. Hard, rounded lumps appeared sometimes after intramuscular injection of the solution. Electromyograms were obtained from these areas directly, in other cases from the area of pain reference. In cases in which the lumbar sacrospinalis was injected recordings were obtained simultaneously from the glutei and the hamstrings. None of these experiments showed electromyographic evidence of spasm. Similar injections in and around interspinous ligaments at various levels did not cause spasm in the homolateral rectus abdominis as claimed.¹⁵

Not content with observing the absence of spasm in positions of rest, we performed control experiments measuring the angle of straight leg raising at which action potentials appeared both before and after the pain due to injections of sodium chloride solution into the lumbar erector spinae. In no instance was there decrease in the angle during pain.

Extreme Cold—A few experiments were carried out in which the forearm was immersed in water at 4°C. Early severe pain in the extremity was followed by

refrigeration anesthesia of the immersed portion associated with a severe ascending ache in the arm to the level of the axilla. Electromyographic recordings from the muscles directly above the immersed forearm showed no evidence of electrical activity.

Mechanical Irritation of the Skin—We produced pain mechanically by clamping a nutmeg grater to the forearm with a carpenter's C clamp. As soon as adaptation had occurred the pressure was increased in order to keep the pain at an approximately constant, severe level. The muscles in the immediate vicinity remained electrically quiescent.

Needle Insertion—Insertion of needle electrodes into normal muscle usually is in itself a painful procedure. It is common to note bursts of injury potentials for a brief period. Spasm does not develop during reasonably long periods of observation, since electrical quiescence is observed here in the relaxed patient.

COMMENT

This paper is based on the premise that muscle spasm is a phenomenon of muscular contraction mediated through the central nervous system. Various types of stimuli are transmitted, by way of reflex arcs and their associated internuncial pools and the final common path, to the effector organ, in this case the muscle. Basically, then, skeletal muscle spasm is a form of sustained muscular contraction similar to active muscle contraction but of an involuntary nature. All muscle contraction initiated by nervous impulses is associated with the production of electrical action potentials, hence, the absence of such potentials in a muscle, even though it may appear to be shortened, thickened or more resistant to digital pressure, makes it clearly impossible for one to consider such a muscle in spasm. Electrical potentials can be recorded even during minimal contraction which is barely perceptible to the eye and which may not even produce noticeable muscular shortening.¹⁷ This probably is the explanation for the frequently reported spontaneous or resting action potentials,¹⁸ a term contradictory in itself. Conversely we know that states of contraction capable of producing obvious, visible postural changes are associated with an



Fig 3—Electromyograms from sacrospinalis patient G. A., acute clonidial tetanus following infected leg ulcer. Record shows that it is possible with our technic to pick up electrical activity, when present, from muscles in a state of prolonged involuntary contraction (cathode ray oscillograph surface electrodes).

amount of potential changes readily detected with present day equipment and technics (fig 3).

Normal muscle at rest does not produce action potentials. Or, to put it differently, the so-called resting tone or postural tonus is not caused by or associated

13 Mead S, and Harell, A. Failure of Experimental Pain to Produce Muscular Spasm. Preliminary Report, read at the Twenty-Sixth Annual Session of the American Congress of Physical Medicine, Washington D. C., Sept 9, 1948.

14 Kugelberg E. Injury Activity and Trigger Zones in Human Nerves. Brain 69: 310-328, 1946.

15 Lewis T, and Kellgren, J. H. Observations Relating to Referred Pains, Viscero-Motor Reflexes and Other Associated Phenomena, Clin. Sc. 4: 47-71, 1939.

16 Simons, D. J., Day, E., Goodell, H., and Wolff, H. G. Experimental Studies on Headache: Muscles of the Scalp and Neck as Sources of Pain, A Research Nerv. & Ment. Dis., Proc. 23: 228-244, 1943.

17 Gilson A. S., and Mills, W. B. Activities of Single Motor Units in Man During Slight Voluntary Efforts, Am. J. Physiol. 133: 658-669, 1941.

18 Denslow J. S., and Hasset C. C. The Central Excitatory State Associated with Postural Abnormalities, J. Neurophysiol. 5: 393-402, 1942. Watkins, A. L., Brazier M. A. B., and Schwab, R. S. Concepts of Muscle Dysfunction in Poliomyelitis, J. A. M. A. 123: 188-192 (Sept. 25), 1943.

with propagated action potentials⁴ Spasticity is caused by lesions in the central nervous system¹⁰ and is characterized by a lowered threshold to stretch²⁰ Even in spasticity the muscles are capable of being fully relaxed and usually are so unless the patient is disturbed or attempts active motion They do not show electrical activity at rest but do produce definite action potentials when disturbed or active²¹ Muscle in spasm can be differentiated from muscle in either normal or spastic states by the fact that, among other criteria, even when optimum positioning and relaxation are attained spike potentials are still present Another condition which can be confused with spasm is rigidity, which is generally assumed to be due to specific lesions of the central nervous system In rigidity definite electrical activity can be elicited easily from the muscles while in a shortened state²² Such lesions of the central nervous system would not be expected in patients suffering from a painful back, fractured bone or painful joint in whom apparent muscular shortening does not produce such activity We have not been concerned with the presence or absence of fibrillation potentials, since it is commonly agreed that these are a sign of denervation³ and we consider that denervated muscle obviously cannot be in spasm, as has been claimed²⁴

We are fully aware of the technical difficulties as well as the pitfalls of interpretation inherent in electromyography To avoid controversy over points such as selection of electrodes and apparatus almost every known type was used Electrodes have included solder pellets taped on over electrode paste, plaster of paris and clay mixtures,²⁵ single enameled steel needles with bared tips and Bronk type coaxial needles Ink-writing oscillographs designed primarily for the slower frequencies of electroencephalography and electrocardiography have definite limitations in electromyography, therefore the performance of these instruments was frequently monitored by cathode ray oscillographs

Not much attention was paid to potential size or shape in the evaluation of the records, but emphasis was placed essentially on the presence or absence of electrical activity as such, since it is well known that variations in spatial relationship of electrodes, inter-electrode resistance, capacitances and impedances, as well as the type of electrodes, influence potential size and shape For these reasons one cannot get comparative values from day to day, patient to patient or even muscle to muscle

Common clinical opinion and a few papers on electromyography which do not clearly define the subject consider spasm a widespread phenomenon Those who repeat these experiments should consider carefully that action potentials from muscles suspected of being in

spasm may result not from spasm but from poor relaxation or positioning Posture and position of a joint not only is maintained by the muscles acting directly on a given area but depends on fixation of this joint or extremity in relation to the whole body It is not enough to try to relax and position only the area to be examined, one must be certain to avoid interfering synergistic muscle activity caused by unsuspected postural mechanisms This has apparently not been considered carefully enough in many records of so-called spontaneous electrical activity, especially from areas of the body closely associated with basic postural maintenance or facial expression Extrinsic or mechanophysical errors are also innumerable A quiescent record obtained under carefully controlled conditions with known suitably sensitive and properly operating equipment seems to be more significant than activity, which may on careful investigation prove to consist mainly of transmitted activity or artefacts²⁰

It is not always easy to demonstrate electrical quiescence, especially in high-strung and apprehensive patients or those in severe pain With improvement of our technic and by instructing the patients to watch the recording mechanism, guiding themselves by its activity, we succeeded in obtaining proper states of both physical and mental relaxation Also, we did not continue experiments over too prolonged periods and thus we avoided production of fatigue, irritability and resentment on the part of the subject, all of which can lead to low grade muscular tension This was especially important in the patients with backache

In our consideration of the cause of lateral lists in the patient with a lame back, we have no experimental data to explain why or how the position of deformity is originally assumed However, it can be stated definitely that once assumed it is not maintained by an active state of contraction of the axial skeletal musculature either of the back or abdomen on the shortened side The muscular shortening and resistance to stretch often seen in overriding fractures and dislocations may be analogous to the shortening or retraction following tenotomy, possibly being of a physical nature The contractures or deformities in rheumatoid arthritis and in related conditions may easily be explained on the basis of soft tissue changes (histologic contracture) A more detailed study of this subject is in progress

As far as poliomyelitis is concerned, the distribution of the lesions in higher centers in addition to those of the cord is too diffuse to permit any generalization Recent work by Bodian²⁷ showed that in some instances areas of the central nervous system generally associated with the production of spasticity are involved It is conceivable that suitably located lesions may likewise produce muscle spasm in an occasional case, as seen in 2 of our patients Nevertheless we agree with Pollock and associates²⁸ that spasm, at least as we have

¹⁹ Magoun H W and Rhines, R Spasticity the Stretch Reflex and Extrapyramidal Systems Springfield Ill Charles C Thomas Publisher 1948

²⁰ Lindsley D B Schreiner L H and Magoun H W An Electromyographic Study of Spasticity J Neurophysiol 12 197 205 1949

²¹ Hoefel P F A and Putman T J Action Potentials of Muscles in Spastic Conditions Arch Neurol & Psychiat 43 1 22 (Jan) 1940

²² Hoefel P F A Innervation in the Dyskinesias A Research Nerv & Ment Dis Proc 21: 502 528 1941

²³ Denny Brown D and Pennybacker J B Fibrillation and Fasciculation in Voluntary Muscle Brain 61: 311 334 1938

²⁴ Pohl J F and Kenny, E The Kenny Concept of Infantile Paralysis and Its Treatment, Minneapolis Bruce Publishing Company 1943

²⁵ Kabat, H and Knapp M E The Mechanism of Muscle Spasm in Poliomyelitis, J Pediat 24 123 137 1944

²⁶ Developed by Dr George H Bishop Department of Neurophysiology Washington University Medical School

²⁶ Schwartz R P Heath A L and Hudson F W Instrumentation in Relation to Electromyography Arch Phys Med 30 383-400 (June) 1949 Instruction Manual for the Grass Electroencephalograph Quincy Mass Grass Instrument Company 1948 Chap H Denny Brown D Interpretation of the Electromyogram Arch Neurol & Psychiat 61 99 128 (Feb) 1949

²⁷ Bodian D Experimental Evidence on the Cerebral Origin of Muscle Spasticity in Acute Poliomyelitis Proc Soc Exper Biol & Med 61: 170 175 1946

²⁸ Pollock L J and others Absence of Spasm During Onset of Paralysis in Acute Anterior Poliomyelitis Arch Neurol & Psychiat 61: 288-296 (March) 1949

defined it, is seldom found in this condition. The discussions and records shown commonly in studies on spasm in poliomyelitis²⁹ describe a phenomenon quite different from what would be expected according to general interpretation of the spasm concept. These authors, discussing spasm, describe brief, transitory states of muscular contraction associated with short bursts of electrical potential activity elicited only by passive stretching. True spasm, however, is characterized by sustained muscular contraction.

We have been unable to produce any sustained muscular contraction or spasm by the application of painful peripheral irritants. Sustained contraction or spasm was not found commonly or even occasionally in association with spontaneous somatic pain. These facts seem to be exceedingly important in the evaluation of the so-called pain-spasm complex.

SUMMARY AND CONCLUSION

1 Spasm in skeletal muscle is a reversible state of sustained involuntary contraction accompanied with muscular shortening and associated with electrical potential changes.

2 Groups of patients with various types of low back pain, fractures and poliomyelitis have been examined carefully for the existence of muscular spasm, using electromyographic technics. Only in an inconsequentially small number could such spasm be detected. It is believed that the clinical diagnosis of spasm in peripheral conditions such as backache, fracture or poliomyelitis will be erroneous in a large percentage of cases.

3 Clinical and experimental work is described which shows that there seems to be no specific cause and effect relationship between spasm and painful peripheral states.

4 A strong plea is made for thoughtful use of the term spasm, differentiating it carefully from spasms, spasticity, tonus, contracture, cramp and rigidity.

²⁹ Schwartz R. P., and Bouman H. D. Muscle Spasm in the Acute State of Infantile Paralysis. *J. A. M. A.* 119: 923-926 (July 18) 1942. Kabat, H. and Knapp M. E. The Mechanism of Muscle Spasm in Poliomyelitis. *J. Pediat.* 24: 123-137 1944. Schwartz R. P., Bouman, H. D., and Smith W. K. The Significance of Muscle Spasm in the Acute Stage of Infantile Paralysis Based on Action Current Records. *J. A. M. A.* 126: 695-702 (Nov. 11) 1944. Brazier M. A. B., Watkins A. L. and Schwab, R. S. Electromyographic Studies of Muscle Dysfunction in Infectious Polyneuritis and Poliomyelitis. *N. England J. Med.* 230: 185-189, 1944.

Pruritus in Hodgkin's Disease—In December 1948, while administering adenylic acid to a small group of patients suffering from Hodgkin's disease in the hope that this substance might possibly improve their general physical condition, we noted that the only two patients having pruritus experienced an abrupt cessation of this symptom. Since then, study of the effect of adenylic acid administration has been extended to other Hodgkin's-disease patients with pruritus and to patients suffering from pruritus of diverse etiologies. In general, the results have been so gratifying that we wish at this time to report the observations made while treating the patients with Hodgkin's disease and to add to this report a brief account of the effects of this therapy on another group of patients suffering from diseases other than Hodgkin's disease. Findings pertaining to the second group are, we feel, pertinent because the results in both groups have been sufficiently similar to suggest the operation of a fundamental mechanism linked to adenylic acid metabolism. The substance used for our study was the sodium salt of muscle adenylic acid, administered in sterile solution—Antonio Rottino, Effect of Adenylic Acid Therapy upon Pruritus Due to Hodgkin's and Other Diseases, *Cancer*, March 1950.

Special Article

VALUE OF THE ELECTROCARDIOGRAM IN CLINICAL PRACTICE

J. BAILEY CARTER, M.D.
Chicago

(Concluded from page 549)

The irregularities of the heart often confound the physician. The electrocardiogram is the final court of authority in all cardiac irregularities. The normal sinus mechanism varies from 60 to 100 beats per minute. Sinus bradycardia occurs with a rate below 60 per minute. Tachycardia denotes a rate above 100 per minute. Most sinus rhythms (with P waves alike in each lead and P-R intervals 0.10 to 0.20 second in duration) occur in normal hearts. The bradycardia of myxedema and beriberi and the tachycardia of heart failure are exceptions. Bradycardia with a normal heart may be due to effect of digitalis, jaundice, brain tumor or meningitis, tumor of the neck or mediastinum, pressure on the eyeball or massage of the carotid sinus. Tachycardia with a normal heart may be caused by exertion, excitement, use of coffee, tea, alcohol, tobacco, or food, pain, medication with atropine, epinephrine or the nitrites, thyrotoxicosis or neurocirculatory asthenia. It may be of emotional or psychogenic origin. Cardiac irregularities are most often due to sinus arrhythmia, extrasystoles or auricular fibrillation, less frequently, to paroxysmal tachycardia, blocks, flutter or auriculoventricular dissociation. An arrhythmia that disappears with increase in heart rate from exercise, effect of nitrites or atropine or other cause is usually of sinus origin and benign. Reassurance is a valuable therapeutic aid. Inequality of regular or irregular heart beats may be due to pulsus bigemmus, pulsus paradoxus or pulsus alternans.

SINUS ARRHYTHMIA

Sinus arrhythmia represents the simplest disturbance of cardiac rhythm. It is usually physiologic, a simple waxing and waning of the heart rate with the phases of respiration, due to variations in the activity of the pacemaker caused by alterations in vagal tone. It is common in children and young adults. If it is pronounced or unrelated to respiration it may be abnormal, effects of digitalis, old age or an unknown factor may be responsible. Each heart beat is from the normal pacemaker, and the individual waves and sequence of chamber contractions are normal throughout the electrocardiogram. There is an irregular disposition of beats—a variation in the length of the interval between individual cardiac cycles, i. e., a variation in the length of the T-P intervals.

Sinus arrest (standstill) is a dropped beat, the result of asystole. No P wave occurs for an interval equal to that comprising two normal beats. Rarely two or three beats may be omitted. Asystole may occur reflexly from carotid sinus pressure, excess digitalis or quinidine. Sinus standstill is due to absence (failure) of impulse initiation. It is a less frequent cause of death than ventricular fibrillation. It may occur accidentally, in a normal heart, from electrocution or during

The numbering of footnotes and illustrations is a continuation of that in the Special Article on the Value of the Electrocardiogram in Clinical Practice which appeared in the June 10 issue of *THE JOURNAL*. Assistant (Rush) Professor, Department of Medicine, University of Illinois College of Medicine. Illustrations are from Carter, J. B. *The Fundamentals of Electrocardiographic Interpretation*, ed. 3 Springfield, Ill., Charles C. Thomas Publisher, to be published.

surgical intervention or spontaneously (terminal) in a diseased heart. In sinoauricular block an impulse is initiated by the pacemaker but is prevented from reaching the auricles. These should not be confused with dropped beats due to auriculoventricular block, in which a P wave occurs during the long interval.

SHIFTING PACEMAKER

An ectopic focus may vary from one level to another (head to tail) within the sinus node. The P waves are upright and vary slightly in height, contour and duration. The P-R interval is above 0.10 second in duration. The ectopic focus may wander from one level to another between the sinoauricular and auriculoventricular node (fig 8). The P waves, if seen, vary in polarity and contour. The P-R interval is below 0.10 second in duration in some cycles. Shifting pacemaker occurs in normal hearts as the result of neurogenic factors via the vagi.

SAFETY MECHANISMS OF THE HEART

Nodal escape occurs if the rate of normal impulse initiation is inadequate or if the impulse fails to reach the ventricles (fig 9). An ectopic (junctional) pacemaker assumes control for one or more beats. Interference is responsible. In escape the heart is under the control of two pacemakers, i.e., impulses from the

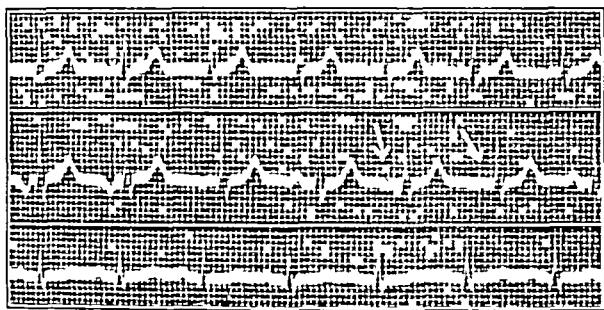


Fig 8—Shifting pacemaker from the sinoauricular to the arterioventricular node. Note the variation in contour of P waves and in duration of P-R intervals.

sinoauricular and auriculoventricular node meet and obliterate each other. A QRS complex occurs after a long pause. It is usually of normal contour but may be slightly abnormal as the result of aberrant (abnormal) ventricular conduction. Either a P wave does not precede the QRS complex or, if it does, it is of normal contour with the P-R interval less than 0.10 second in duration. Dissociation (auriculoventricular) occurs when a series of nodal escapes, because of continued interference, prevents the transmission of normal impulses to the ventricles. The unidirectional block of the junctional tissue which permits an impulse to pass to the ventricles but not to the auricles assists this process. In nodal rhythm the sinoauricular node loses control and the auriculoventricular node becomes the pacemaker. Upper nodal rhythm is common (fig 10). Lower nodal rhythm is rare (fig 11). Heart beats occur regularly at a rate of 35 to 50 per minute. A retrograde small upright P wave in lead I and inverted P waves in leads II and III with the P-R interval less than 0.10 second in duration occur. Rarely, in coronary nodal rhythm a normal P wave with short P-R interval is seen, the pacemaker being near the ventricles. In the (rare) bundle of Kent syndrome⁹ the P-R interval is short because a normal impulse partially bypasses the auriculoventricular node. An inverted P wave occurs in the S-T interval of lower nodal

rhythm. The P wave may be absent (buried in QRS complex) in middle nodal rhythm. Nodal rhythm is most often the result of excess digitalis. It is abolished by atropine. Persistent nodal rhythm is often due to coronary disease. Nodal rhythm and tachycardia may be confused with paroxysmal nodal tachycardia, in which the rate may be as low as 100 per minute. Infrequently, an ectopic ventricular focus leads to the development of an idioventricular rhythm. These adjustments illustrate safety mechanisms inherent within the heart, each of which, in turn, can initiate impulses after depression or blocking of higher pacemakers. Reentry and parasystole are hypothetical mechanisms assumed to be responsible for certain unusual arrhythmias including auricular flutter and fibrillation. An unabridged textbook or the literature should be consulted.

AURICULAR EXTRASYSTOLES

In auricular extrasystoles the impulse arises from an ectopic auricular focus⁹ and spreads to the ventricle, usually giving rise to a normal QRS complex and T wave (fig 12). The complex may be aberrant or absent if the impulse from the ectopic focus is blocked by a refractory auriculoventricular node, the P wave being of abnormal contour in contrast to the normal P wave of heart block. The P wave may be upright, diphasic or inverted, depending on whether the ectopic focus is in, near or remote from the sinoauricular node. The pause after an auricular extrasystole is not compensatory, hence, the fundamental rhythm is disturbed.

NODAL EXTRASYSTOLES

If a QRS complex of normal contour and duration appears prematurely and is immediately preceded or followed by a P wave, either inverted or upright, it represents an auriculoventricular nodal (junctional) premature beat (fig 13). If the focus of origin is high in the node a retrograde P wave occurs and the P-R interval is short. If auricles and ventricles contract simultaneously (focus midway in node) a P wave is not seen because it is superimposed on the QRS complex. If the ectopic focus is low in the node the P wave falls on the descending limb of the QRS complex or just after its completion, i.e., during the S-T interval. Nodal extrasystole is followed by a compensatory pause.

VENTRICULAR EXTRASYSTOLES

Ventricular extrasystoles constitute the commonest cardiac arrhythmia, they are responsible for most cases of "intermittence" (fig 14). The ectopic focus may be anywhere in the ventricles, to which the arrhythmia is limited. This results in the extrasystole being followed by a compensatory pause, i.e., the sum of the short interval preceding and the long interval following the extrasystole (the interval between the two normal beats on each side of the extrasystole) is equal to the interval between two normal cardiac cycles. The maintenance of a dominant rhythm is made possible by this compensatory pause and the sinus rhythm is undisturbed. No P wave precedes the deformed (bizarre) QRS complex. The QRS complex is diphasic slurred, notched, of high amplitude and of increased duration. If the ectopic focus is near the normal conduction pathways the QRS complex may be only slightly deformed. If the focus is remote, the complex is more decidedly abnormal. The T wave is large, often peaked and always opposite in direction to the chief deflection of the QRS complex. Determination of the ventricle of origin

⁹ Prinzmetal M and others. Mechanism of the Auricular Arrhythmias. Circulation 1:241, 1950.

is of academic rather than clinical interest. It is of greater clinical importance to determine whether the extrasystoles arise from a single focus or from multiple foci in one or both ventricles. Multiple ventricular extrasystoles often initiate paroxysms of ventricular tachycardia. Rarely, a ventricular or nodal (not auricular) extrasystole may be interpolated between two normal beats. The premature beat here becomes a true extrasystole.

PAROXYSMAL TACHYCARDIA

In paroxysmal tachycardia there is a regular series of extrasystoles (ectopic beats) originating in the auricles, junctional tissues or ventricles. A paroxysm is of sudden onset and offset.

Auricular Tachycardia—The common, benign, auricular form of tachycardia occurs in youth and may recur for weeks, month or years⁹ (fig 15). It con-

As in nodal extrasystoles there are three types. A QRS complex, of supraventricular contour, may be followed (in the S-T interval) or just preceded (short P-R interval) by a P wave as the first beat of a paroxysm. The P wave is buried in the QRS complex if it is of midnodal origin. Often nodal and auricular tachycardia are distinguished with difficulty. In this instance the diagnosis of supraventricular tachycardia is made. The presence or absence of upright or inverted P waves with P-R intervals above or below 0.10 second in duration often determines the location of the ectopic focus in auricles or the auriculoventricular node, a P wave in the S-T interval clearly indicates its nodal origin.

Ventricular Tachycardia—Paroxysmal ventricular tachycardia is a serious clinical disorder¹⁰ (fig 17). Fortunately, it is seldom observed except in serious organic heart disease. Vagal stimulation has no effect

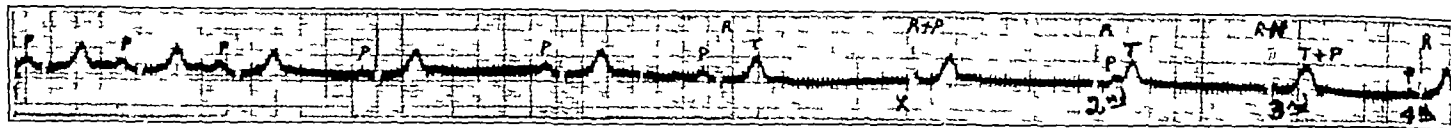


Fig 9—Escape. The curve shows sinus slowing of the heart. Escape of auriculoventricular nodal origin occurs at *x*. The pause preceding *x* is so long that the auriculoventricular nodal irritability cannot tolerate it, hence the beat at *x* occurs before the sinus impulse arrives beginning just before the peak of the delayed P wave. The P wave is superimposed on the lower portion of the S wave. The second nodal beat has a P wave midway between the S and T waves. The third nodal beat reveals the P wave superimposed on the T wave. The fourth beat after *x* represents a normal cycle in which the QRS complex follows the P wave after a normal interval. Note that the QRS complexes of nodal origin vary only slightly from the normal. Ventricular escape is rare; it presents QRS complexes which vary widely from the normal contour (from Fardeet H. E. B. Clinical Aspects of the Electrocardiogram, New York: Paul B. Hoeber Inc. 1924).

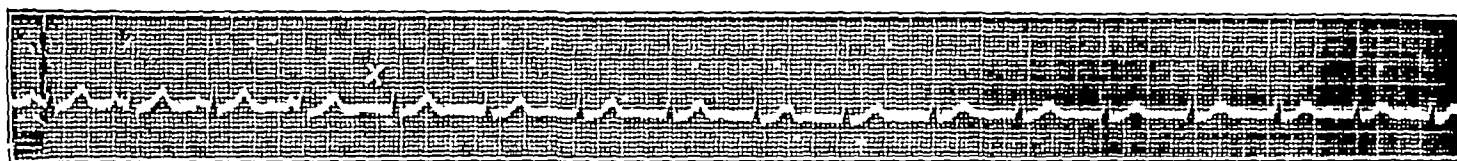


Fig 10—Upper nodal rhythm. At the beginning there is a shifting pacemaker with shortening of the PR interval until at *x* the P wave disappears and the onset of nodal rhythm occurs. The P waves coincide with the QRS complexes. No trace of an auricular complex is to be found, and the line is perfectly smooth in diastole as the result of simultaneous contraction of auricles and ventricles. Thus nodal rhythm has a rate of 90 per minute.

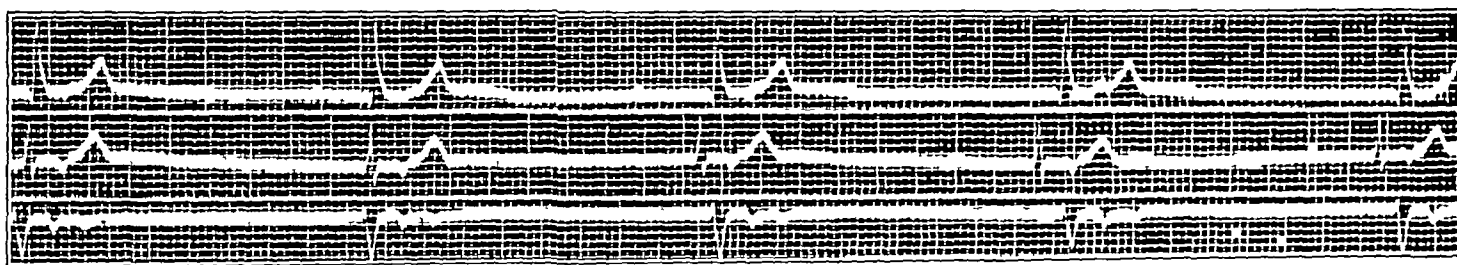


Fig 11—Lower nodal rhythm. The curve shows regular and slow action of the ventricles at a rate of 40 per minute. Note the P waves occur in S-T intervals.

sists of a continuous series of auricular extrasystoles at a rate of 120 to 220 per minute. The P waves are upright to diphasic and are often superimposed on the preceding T wave. Attacks are best terminated reflexly via the vagi, by deep breathing, holding the breath, bending forward, lifting the arms up and over the back of chair or car seat, swallowing (bolus of food), vomiting (apomorphine), pressure on the supraorbital nerve over one or both closed eyes or pressure and massage over the carotid sinus. Morphine, equimidine or methacholine may be given the patient. Digitalis is less effective in controlling the arrhythmia. It is used only for the heart failure that may result.

Nodal Tachycardia—Nodal tachycardia is due to excessive irritability of the junctional tissues. It is intermediate as compared to the benign (auricle) and malignant (ventricular) forms. Prognosis depends on the extent of the associated cardiac change (fig 16).

on the tachycardia. The drug of choice is quimidine. A paroxysm is initiated in runs of one to five ventricular extrasystoles, from which the QRS waves of the tachycardia take their general contour. They are usually of high amplitude and follow each other in rapid succession with or without normal or retrograde auricular response. Ventricular tachycardia may be associated with auricular fibrillation or flutter.

AURICULAR FLUTTER

Auricular flutter is due to a circus movement within the auricular muscle continually following a constant path at a constant rate⁹ (fig 18). Flutter is encountered less frequently than fibrillation, it is more often transient than permanent. The auricular rate is regular at 200 to 400 per minute, only a few of the impulses passing over and initiating a ventricular contraction.

¹⁰ Armbrust C. A. Jr. and Levine S. A. Paroxysmal Ventricular Tachycardia. A Study of 107 Cases. *Circulation* 1: 28, 1950.

The ratio is usually 2:1, with a ventricular rate of 120 to 180 per minute. Pure flutter exhibits great regularity of cycles. Impure flutter exhibits variations from cycle to cycle. The ventricular action may be regular or irregular, rapid or slow, depending on whether a 1:1, 3:1 or 4:1 auriculoventricular block is present. Quinidine, properly used, is the drug of choice.

P waves are absent, being replaced by f waves (flutter waves). These follow each other in rapid succession, no isoelectric period being apparent. Diastole of the auricle as a whole is lacking, the various muscle fibers resting individually. The f waves are remarkably constant in rate, form and amplitude, they give rise to a serrated graph in which each complex is a duplicate of the last. Usually they are seen best in leads 2 and 3. The QRS complex is of supraventricular origin but is distorted by f waves. The T waves are not seen, since they are hidden by the alterations of the graph. Vagal stimulation usually causes halving of the rate, which immediately returns to the previous rate with release of the pressure. This helps to distinguish flutter from paroxysmal tachycardia, in which pressure either stops the attack or has no effect.

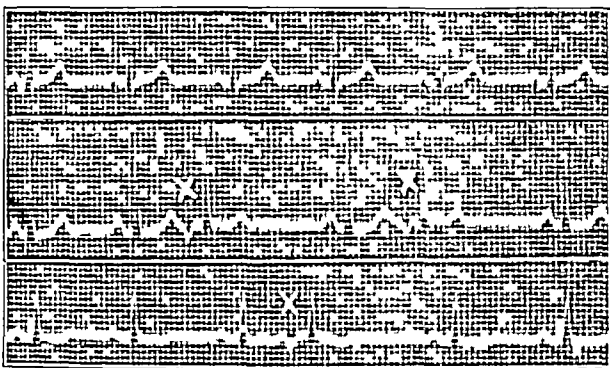


Fig 12—Auricular extrasystoles at x , which arose at a distance from the pacemaker. Abnormal P waves are decidedly different from the normal P waves.

AURICULAR FIBRILLATION

Auricular fibrillation is due to a circus movement within the auricular musculature traveling at an inconstant rate and following an inconstant path⁹ (fig 19). It is more often permanent than transient. There are small, rapid, irregular fibrillary contractions of the auricles at a rate of 400 to 600 per minute but only a relatively few provoke a ventricular response. The result is a pulse which is usually rapid and extremely (irregularly) irregular both as to time and force. Owing to failure of some of the weak ventricular contractions to open the semilunar valves and to initiate a pulse wave in the aorta, the pulse rate at the wrist is often less than at the apex, the difference is known as the pulse deficit. Auricular fibrillation constitutes 50 per cent of the persistent arrhythmias. Except for hyperthyroidism it usually indicates rheumatic or hypertensive heart disease. It is common in failure. It is rare in syphilitic aortitis, subacute bacterial endocarditis, cor pulmonale and congenital heart disease.

The P waves are absent. They are replaced by f waves. The QRS complex is irregularly irregular in occurrence. The T wave, if prominent, is deformed by f waves. In thyrotoxicosis the effects of muscle tremor may confuse, they may appear to be f waves. Fibrillation may be irregularly or regularly interrupted by ventricular extrasystoles. If digitalis is given, irregular extrasystoles indicate decrease in dosage, if fre-

quent or from multiple foci, or if digitalis coupling with pulsus bigeminus or pulsus trigeminus occurs, administration of the drug should be stopped. Fibrillation may be associated with impure flutter, bundle branch block or complete heart block. Exercise increases both the rate and the irregularity, whereas it usually causes the disappearance of extrasystoles.

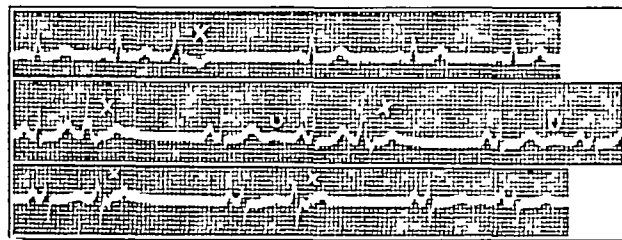


Fig 13—Auriculoventricular nodal extrasystoles at x arising low in the auriculoventricular node. The P waves occur during the ST interval of the abnormal beats. Note the aberrant form of the QRS-T complex of these abnormal beats. Two U waves occur.

CHAOTIC HEART ACTION

Chaotic heart action (delirium cordis) is the result of complex arrhythmias caused by the simultaneous activity of many ectopic foci (fig 20).

HEART BLOCK

Heart block may be of any grade from a slightly increased P-R interval (0.21 second) through the stage of dropped beats (4:3, 3:2, 3:1 and 2:1 block) to complete block. Heart block never gives rise to a pulse deficit as in fibrillation or extrasystoles. A 2:1 block may simulate sinus bradycardia. Exertion or atropine often changes it to a 1:1 rhythm with a doubling of the ventricular rate, whereas in bradycardia the change is a gradual increase and never a sudden change in rate. It may be caused by vagal effects, digitalis,

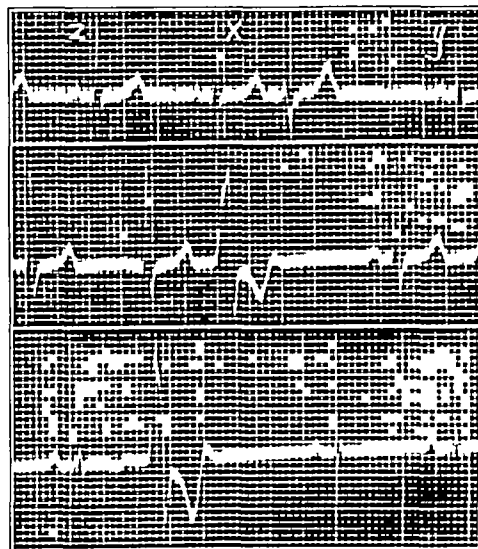


Fig 14—Ventricular extrasystoles. The distance x to y is twice that of x to z . A compensatory pause follows ventricular extrasystoles.

rheumatic, arteriosclerotic or congenital heart disease, infarction, asphyxia, calcification and tumor or gumma of the septum. Syphilis seldom is responsible.

Delayed Auriculoventricular Conduction—This represents the mildest form of heart block (fig 21). It is a graphic not a clinical diagnosis. Rarely, a presystolic gallop suggests the presence of delayed auriculoventricular conduction. A single characteristic observation is

prolongation of the P-R interval beyond 0.20 second. The length of the interval is fairly constant for the same patient but varies from patient to patient. The P wave, QRS complex and T wave may show various alterations. At times the condition is transitory, being of vagal origin. In many of these cases atropine therapy causes

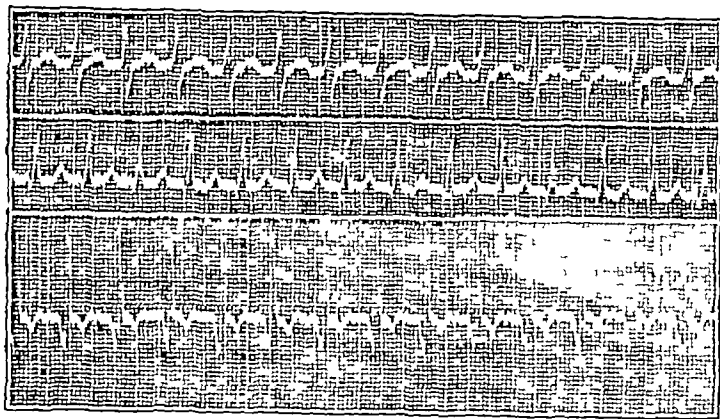


Fig 15—Paroxysmal auricular tachycardia which was considered to be of nodal type at first. Note that P waves are present and are fused with the T waves. Note the abnormally sharp rise of the T waves in lead 2, due to this superimposition of the P waves.

the prolonged P-R interval to return to normal in ten to thirty minutes. It is an important sign in rheumatic heart disease and may be the only dependable evidence of cardiac involvement in a case of rheumatic fever. If delayed auriculoventricular conduction is present, the patient should be observed and the diagnosis postponed.

Dropped Beats—Dropped beats represent second stage heart block (fig 22). Clinical recognition of this type of block is seldom difficult, the pulse has a regular rhythm with a single beat occasionally or regularly absent. At times the P-R interval may gradually lengthen until the ventricular contraction (QRS) is completely blocked, the P-R interval becoming shortest after the long pause. Such a sequence gives rise to a Wenckebach period. The result of this change in the P-R interval is that the pause during which no ventricular contraction occurs is not twice the interval between two normal beats but is considerably shorter. This gives rise to arrhythmia, which becomes less pronounced with higher grades of block.

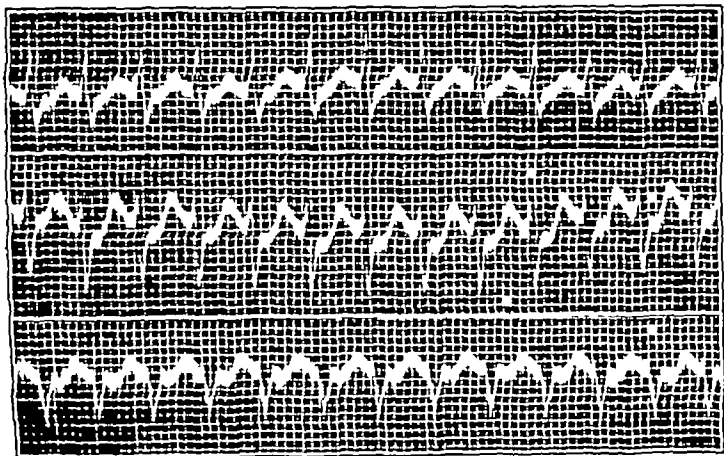


Fig 16—Paroxysmal nodal tachycardia. Note that no P wave is seen being superimposed on the preceding T wave. The QRS complex is of normal duration and does not vary in form decidedly from the normal.

Partial Heart Block—A still more advanced (third) stage of block is represented by partial heart block (fig 23). It may be only temporary. It may be a forerunner of complete block. Here again the auricular impulses fail to provoke a ventricular response, but they do so more frequently and regularly than in second

stage block. A 2:1 rhythm is the most common form. There may be a 4:3, 3:2 or 3:1 type of block. The ratio refers to the number of auricular contractions (P waves) as compared with the number of ventricular contractions (QRS complexes) present.

Bundle Branch Block—Bundle branch block is better designated as intraventricular block, i. e., block within the ventricles. It is the result of defective conduction below the main (His) bundle (fig 24). It is usually chronic and most frequently seen in coronary disease. Often a transient form occurs with infarction or coronary insufficiency, from digitalis or quinine therapy and in diphtheria or other acute infection. The intermittent benign type is seldom seen. The location of the lesion in intraventricular block is controversial. The new is the exact opposite of the classic terminology, i. e., left axis deviation indicates left bundle branch block (90 per cent) and the right axis deviation indicates right bundle branch block (10 per cent). The subdivi-

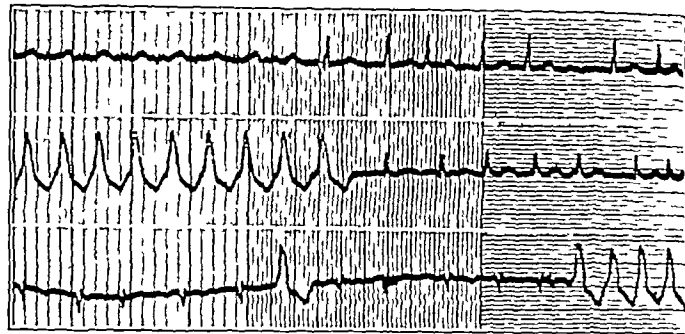


Fig 17—Paroxysmal ventricular tachycardia. Ventricular extrasystole in lead 3. Short paroxysms of ventricular tachycardia are seen. The first cycle and the last cycle of a paroxysm are seen in leads 3 and 2.

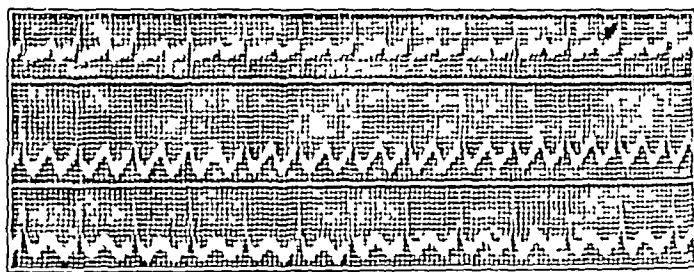


Fig 18—Auricular flutter with 2:1 response of the ventricles. Only every other auricular contraction provokes a ventricular response. The auricular rate is 280 per minute, the ventricular rate 140 per minute. The f waves follow each other in rapid succession. T waves and f waves are usually combined. Flutter waves occur with great regularity giving a serrated graph.

sion into right and left types is of academic rather than clinical interest, because the prognosis is the same for both types. It is the type and extent of myocardial involvement, not the presence or location of the bundle branch lesion, that determines prognosis.

This is not a clinical but an electrocardiographic diagnosis, although a split apex beat, gallop rhythm, reduplication of heart sounds and alternans may be suggestive. The diagnosis depends on the fact that the QRS complex¹¹ is above 0.10 second in duration. Prolonged (delayed) intraventricular conduction signifies a QRS interval of 0.10 to 0.12 second in duration as the only significant graphic abnormality. Prolonged intraventricular conduction of bundle branch type signifies a QRS complex of high amplitude, grossly slurred and notched and more than 0.12 second in duration, the T wave usually but not always is tall and oppositely directed.

¹¹ A P wave precedes the QRS complex, i. e., it is not a ventricular extrasystole. The P-R interval is less than 0.10 second in duration in the bundle of Kent syndrome.

tion to the main deflection of the QRS complex in the leads of greatest excursion. More than 90 per cent of these cases show left axis deviation, less than 10 per cent show right axis deviation. There is little difference in the significance of incomplete and complete bundle branch block, either indicates an unfavorable prognosis.

Arborization Block—Intraventricular block of lesser degree suggests subendocardial fibrosis (from coronary disease or other pathologic change) involving the Purkinje network (fig 25). The site of the lesion cannot be determined by electrocardiography. The low voltage QRS complex is prolonged, decidedly slurred and notched. This questionable entity is best considered intraventricular block with low voltage.

Complete Heart Block—In complete auriculoventricular block there is complete dissociation of auricles and ventricles, of the P and QRS waves (fig 26). The former occur at a rate of 60 to 80 per minute; the latter occur independently and regularly

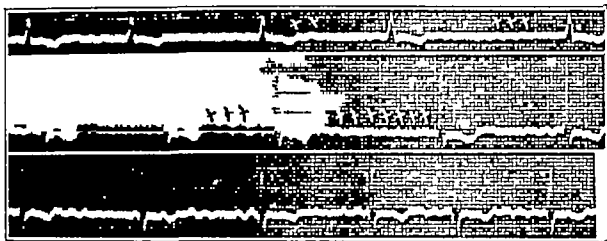


Fig 19—Auricular fibrillation. The small wavelets marked *f* are due to auricular activity. Note how faint these *f* waves are in lead I. The QRS complexes occur irregularly and are not preceded by any wave of constant form which might represent a P wave.



Fig 20—Ventricular fibrillation. The same sort of irregularly varying form is seen in this record as in the auricular waves of fibrillation of the auricles, but the waves are much larger and often bear a certain resemblance to ventricular extrasystoles. The small wavelets *f* are considered due to auricular fibrillation. This illustration is from Halsey's article on ventricular fibrillation (from Pardee, H. E., B. Clinical Aspects of the Electrocardiogram, New York, Paul B. Hoeber, Inc., 1924).

at a rate of 30 to 40 per minute. The ventricular rate is independent of the auricular rate and rhythm. Ventricular extrasystoles or auricular fibrillation may occur with complete heart block, or the latter may change into a partial block and vice versa. A partial block may shift to a normal sinus rhythm and back to a complete block. Atropine may at times cause an immediate return of a complete block to the normal rhythm.

The relation of the P waves to the QRS complexes constantly change. The P-P interval is regular, but the P wave in its relationship to the other waves varies constantly. The interval between QRS complexes if not constant varies but little. The QRS complex may be of relatively normal contour, deformed or increased in duration in one or all leads. The T wave may be upright, diphasic or inverted in one or all leads.

Adams-Stokes Disease—In heart block pronounced slowing or ventricular asystole may cause cerebral

anemia. If this lasts longer than fifteen to thirty seconds recovery is always complicated with convulsions. This syndrome is recognized as a definite clinical entity. If the attack is mild there is momentary pallor and lapse of consciousness. With longer attacks there occurs flushing of the face, cyanosis,

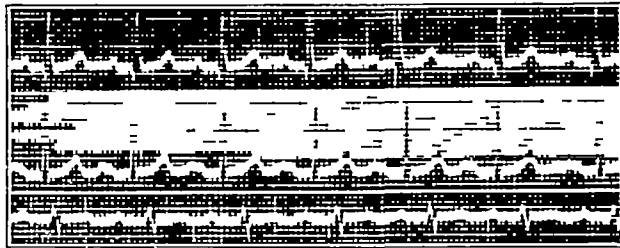


Fig 21—Prolonged auriculoventricular conduction. The P-R interval is 0.24 second.

twitching or even a clonic epileptiform seizure, there is ventricular asystole or a rate of 10 or less per minute. The attack ceases when a rate of 20 to 25 per minute has become established. Epinephrine is best for the relief of an attack, ephedrine is used to prevent recurrences.

CORONARY DISEASE

Coronary disease should be considered from a physiologic point of view. Coronary insufficiency may be due to factors which increase the work of the heart or which lead to a decrease in the coronary circulation or both. Exertion, excitement, emotion, food, cold, tobacco, epinephrine, hemorrhage, shock, asphyxia or movements, postures, dreams and vasomotor changes during sleep are most commonly responsible for an increase in the load on the heart. The commonest cause for decreased coronary flow is arteriosclerosis. An incipient coronary insufficiency is recognized. A transitory form is recognized as angina pectoris infrequently as paroxysmal dyspnea or acute pulmonary edema. Chronic coronary insufficiency of a benign, nonprogressive type or of a malignant, progressive nature may develop. Coronary failure results with further increase in the demands on the heart or with further reduction of its available blood supply. A temporary form may result from pulmonary embolism, cor pulmonale, pericarditis, dissecting aneurysm, trauma, hypertensive crises, aortic stenosis, heart

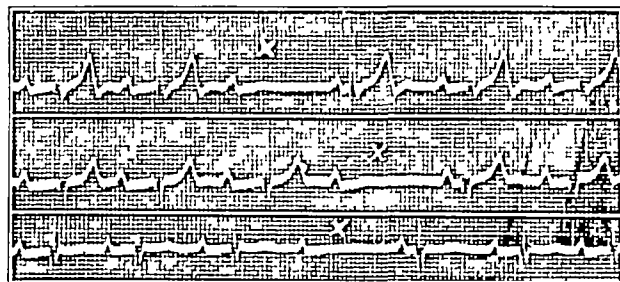


Fig 22—Incomplete heart block with dropped beats at *x*. The P-R interval gradually lengthens until no QRS complex follows the P wave and then becomes shortest after the pause. Wenckebach periods are evident.

block, heart failure, acute abdominal conditions, post-operative complications and infections. Infrequently it is seen in an acute form without detectable pathologic basis, death usually being due to ventricular fibrillation or cardiac standstill. Although angina pectoris and coronary failure have the same physiologic basis, in

folded rubber strap for insulation. Leads 1 and 3 on the control board are selected in turn, a lead CR₄ and lead 5 (inverted CF₄) being recorded in succession. They are not mirror images of each other. Lead 5 is more often helpful than lead 4. Over a period of years the characteristic features of the normal or abnormal lead IV or V were established and clinicians learned to recognize significant variations. Lead 5 is identical with this old lead V, the "favored" left leg electrode being used. Two leads have definite advantages over a single precordial lead. The recording of more than two such leads entails difficulties, increasing directly with the number of leads employed. The above technic is valuable for screening, being adequate for diagnosis in about 95 per cent of cases.

Wilson's unipolar (V) leads are the most accurate chest leads.¹⁴ They are of the greatest advantage in the study of academic problems and are now used more widely by clinicians.¹⁵ In about 5 per cent of cases unipolar leads should be used after the initial screening record for more detailed study.

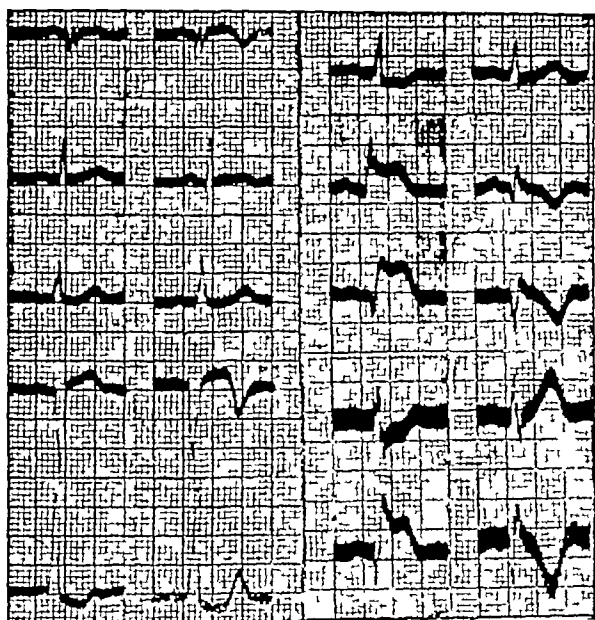


Fig 28—A, an early and late Q₁T₁ type of anterior apical infarction curve; B, an early and late Q_sT_s type of posterior basal infarction curve.

SERIAL CURVES

That the characteristic electrocardiographic changes following myocardial infarction are of a progressive nature was shown by Eppinger and Rothberger¹⁶ in 1909. Samojloff¹⁷ in 1910 reported similar observations. The classic experiments of Smith¹⁸ in 1918

were confirmatory. Herrick¹⁹ in 1931 stated that "one feature needs repetition, lest it be forgotten. It is that the electrocardiogram in these cases is not fixed, that for a long time it undergoes change." The progressive and regressive features of myocardial infarction have been repeatedly confirmed (figs 29 and 30). The electrocardiograph registers these destructive and reparative changes. These processes cause the electrocardiographic records to change from day to day. After a variable period these changes may become stationary, persist indefinitely or regress, the tracing may eventually return to normal. Serial electrocardiograms, with curves recorded at proper intervals, are diagnostic of acute infarction in almost 100 per cent of cases. They enable one to follow the progress of an occlusion. They are indispensable for the proper management of these cases. After adequate history, careful examination and essential laboratory aid, serial curves afford the most valuable single aid in the diagnosis and management of acute myocardial infarction. Recognition of this

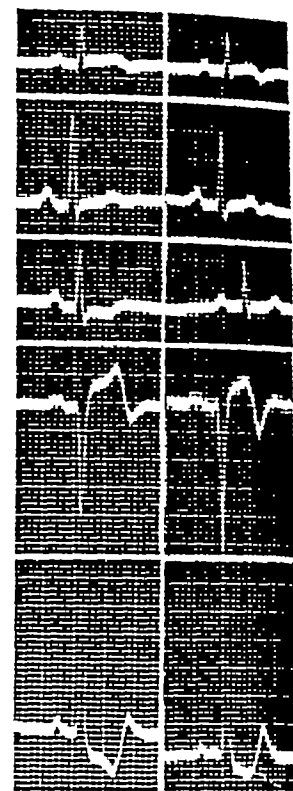


Fig 29—Chest lead changes, although decided, are of no assistance since limb lead changes in the initial record are diagnostic of anterior apical infarction.

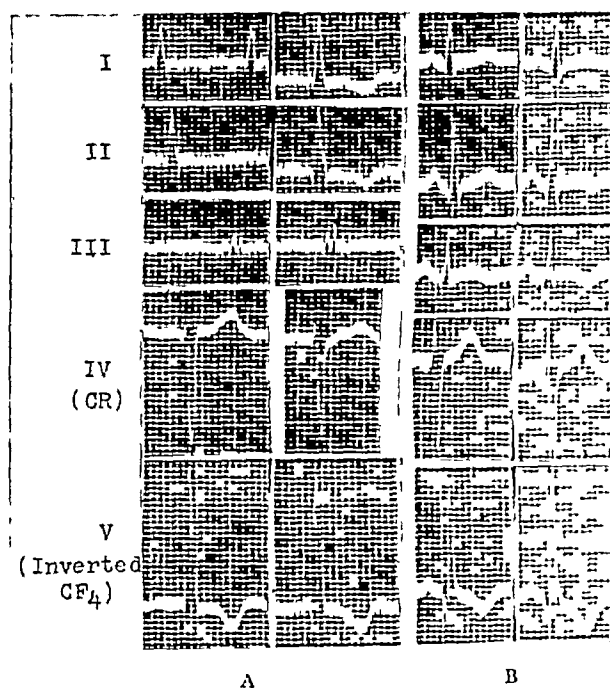


Fig 30—Serial curves of anterior apical and posterior basal infarctions. A, diagnosis of infarction from absent R wave in lead 4 and Q wave in lead 5 was confirmed by limb lead changes in the subsequent record. B, the contour of the slightly inverted T wave in lead 3 suggested infarction, which was confirmed by subsequent record. Shouldering of an inverted T wave in lead 3 may be of diagnostic assistance; a later tracing showed typical inversion of the T wave in leads 2 and 3.

fact represents the most valuable advance in clinical electrocardiography.

4753 Broadway (40)

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15 Carter, J. B. Fundamentals of Electrocardiographic Interpretation. ed. 3. Springfield, Ill.: Charles C. Thomas, Publisher, in press.

16 Eppinger, H. and Rothberger, C. J. Zur Analyse des Elektrokardiogramms. *Wien klin Wchnschr* 22: 1091, 1909.

17 Samojloff, A. Weitere Beiträge zur Elektrophysiologie des Herzens. *Arch f d ges Physiol* 135: 417, 1910.

18 Smith, F. M. The Ligation of the Coronary Arteries with Electrocardiographic Study. *Arch Int. Med* 22: 8 (July), 1918.

19 Herrick, J. B. The Coronary Artery in Health and Disease. *Am Heart J* 6: 589, 1931.

Clinical Notes, Suggestions and New Instruments

ANGIONEUROTIC EDEMA AND RASH DUE TO AUREOMYCIN

Reaction in a Patient with Multiple Sensitivities

ALBERT D. PARETS, M.D.
New York

Significant toxic reactions to orally administered aureomycin are believed to be rare,¹ and the likelihood of their frequent occurrence has been minimized in the literature. We propose in this report to call attention to a recently observed severe reaction and to review briefly the less well known side effects which may become more common as the use of this antibiotic is extended.

REPORT OF CASE

C. R., a white man aged 35, had always been in good health. He had no personal or family history of allergy, and prior to the manifestations noted herein had not reacted adversely to drugs.

In December 1946 he had mild subacute left maxillary sinusitis which was treated with a penicillin nasal spray with apparent cure. Thereafter he was well until April 1948 when the left antrum was found to be chronically infected. After unsuccessful conservative treatment by an otolaryngologist a maxillary antrotomy was performed in June 1948. Penicillin in oil and wax was administered intramuscularly once daily for three days postoperatively. One week later the patient had typical urticarial lesions over both buttocks such as were seen not infrequently when this repository form of penicillin was in common use.

In August 1948 the patient contracted primary atypical non-bacterial pneumonia. Because of the previous reaction to penicillin his physician prescribed sulfadiazine; however this medication had to be discontinued when vomiting ensued. Crystalline penicillin G in isotonic sodium chloride solution was then administered intramuscularly every three hours for five days. Five days later there appeared a serum-sickness-like reaction, characterized by fever, generalized urticaria, arthralgia, headache and diarrhea. Various antihistaminic drugs were tried but were of no benefit, the constitutional reaction to the antibiotic lasting ten days.

After the primary atypical pneumonia mild cough persisted and the patient experienced frequent exacerbation of cough with expectoration and nasal congestion. He sought treatment in April 1949 because of increasing cough and fatigue. Examination revealed rhonchi and sibilant and sonorous rales at the right lung base and fine and medium moist rales at the left lung base. Sulfonamide drugs were prescribed and taken without untoward reaction. Within a week the pulmonary signs had disappeared. In June 1949 there was again exacerbation of cough and with it expectoration of much thick, yellow, non-odorous sputum. There was no thoracic pain or hemoptysis. Fine moist rales were heard at the left lung base. A definite increase in the bronchial markings extending toward the right base were noted fluoroscopically. A sputum culture grew alpha hemolytic *Streptococcus* and nonhemolytic *Staph. albus*. Acid fast bacilli were not found. A bronchogram preceded by local anesthesia with butacaine sulfate was done with iodized oil as the contrast medium. This revealed early bronchiectasis of the right middle and lower lobes manifested by definite cylindrical dilatation of the bronchi. During and immediately after the procedures incident to the making of the bronchogram the patient felt well. However, about fifteen hours later there was sudden onset of intense nasal congestion followed rapidly by severe edema of the eyelids and later of the face. This episode was considered to be a delayed allergic reaction to butacaine sulfate. Antihistaminic drugs produced considerable relief.

Postural drainage was taught the patient, and aureomycin hydrochloride, 2 Gm daily, was prescribed. In view of the previous sensitivity to parenterally administered penicillin it

was decided not to use this antibiotic by inhalation or intra-bronchial instillation. On the seventh day of aureomycin therapy when a total of 12 Gm had been taken periorbital edema developed, followed in a few hours by facial edema and a rash. The edema became intense, causing almost complete closure of the eyes and pronounced distortion of the face. The rash, which began in the lower extremities and spread upward to involve the entire body with the exception of the head, neck, hands and feet was a patchy, macular, nonpruritic erythematous eruption. Demarcation between normal and involved skin at the wrists and ankles was fairly sharp. There was no fever, rhinitis, laryngeal edema, asthma or arthralgia. The eruption remained static for about five days and cleared without desquamation. Aureomycin therapy was discontinued promptly with the onset of the reaction and antihistaminic drugs were given, but they did not seem to influence the edema or the rash, both of which subsided in a week. Concomitant with the onset of the reaction to aureomycin the patient's cough and expectoration diminished considerably. Sputum became thin, clear and small in amount, within ten days respiratory symptoms disappeared completely and abnormal signs were not heard in the lungs.

In late August and September 1949 typical pollen hay fever symptoms appeared for the first time and skin testing revealed positive reactions to ragweed.

COMMENT

Except for nausea, vomiting, loose bowel movements, occasionally diarrhea, epigastric distress and pruritus ani, side-effects due to orally administered aureomycin are not well known. An evanescent type of reaction, consisting of an abrupt rise and fall in temperature, occasionally accompanied with a shocklike picture with a drop in blood pressure and tachycardia, has been described as occurring in the course of treatment of brucellosis.² This is believed to be akin to a Herxheimer reaction. A true febrile Herxheimer response has been observed frequently during treatment of early syphilis when large doses of aureomycin are administered,³ but a cutaneous Herxheimer reaction has not as yet been noted. Inflammation of the mouth and scrotum as well as pruritic papular lesions on the shoulders of patients have been observed during the course of Q fever therapy.⁴ These symptoms did not necessitate cessation of therapy or become progressively worse while administration of the drug was continued. A severe reaction to aureomycin was recently described by Riese.⁵ As experimental treatment for obstructive jaundice thought to be due to a virus infection he administered aureomycin to a patient at the rate of 3 Gm daily for six weeks. At the end of this period "burning in the chest" and swelling of the legs appeared, but symptoms subsided within two days after the patient discontinued treatment. Aureomycin was readministered, and at the end of two weeks a toxic reaction consisting of edema of the face, hands, forearms, ankles and feet, developed in association with a papulovesicular eruption beneath the breasts between the thighs and about the anus. The patient had burning sensations in the mouth where an inflammatory reaction was noted. Symptoms disappeared within a few days after withdrawal of the drug. Later, as little as 1.25 Gm of aureomycin caused a reappearance of the symptoms, indicating that true sensitization had developed.

Although the patient described in the present communication had not had aureomycin on any previous occasion the symptoms he manifested suggest a hypersensitivity type of response similar in nature to his reaction to butacaine sulfate.

SUMMARY

A patient with multiple sensitivities was treated with 2 Gm of aureomycin hydrochloride daily for early bronchiectasis. A severe reaction consisting of angioneurotic edema of the face

2 Spink W. W., Braude A. I., Caliendo M. R. and Coytia R. S. Aureomycin Therapy in Human Brucellosis Due to *Brucella melitensis*. *J. A. M. A.* 138: 1145 (Dec. 19) 1948. Braude A. I., Hall W. H. and Spink W. W. Aureomycin Therapy in Human Brucellosis Due to *Brucella abortus*. *ibid.* 141: 831 (Nov. 19) 1949.

3 Rodriguez J. P., Pike F., Weinstein S. and Harris V. W. Aureomycin and Its Effects in Early Stages of Syphilis. *J. A. M. A.* 141: 771 (Nov. 12) 1949.

4 Lennette E. H., Meiklejohn G. and Thelen H. M. Treatment of Q Fever in Man with Aureomycin. *Ann. New York Acad. Sci.* 51: 331 (Nov. 30) 1948.

5 Riese J. A. Toxic Reaction to Aureomycin. *J. M. Soc. New Jersey* 46: 467 (Oct.) 1949.

1 Spink W. W. and Low E. M. Aureomycin: Present Status in the Treatment of Human Infections. *J. A. M. A.* 141: 964 (Dec. 3) 1949.

and a fairly generalized nonpruritic erythematous skin eruption, appeared on the seventh day of treatment and lasted one week. Treatment with various antihistaminic drugs was of no benefit.

The literature dealing with the toxic effects of orally administered aureomycin has been reviewed briefly, and some less well known but significant side actions for which one should watch are described. Sensitization to aureomycin apparently can occur

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Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article

HOWARD A. CARTER, *Secretary*

ABSTRACT OF THE MINUTES OF THE MEETING OF THE COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

Dec 2 and 3, 1949

The Annual Meeting of the Council on Physical Medicine and Rehabilitation was held Friday and Saturday, Dec 2 and 3, 1949, at the Headquarters of the American Medical Association. Council members present were Drs Morris A. Bowie, Anthony C. Cipollaro, W. E. Garrey, Frank H. Krusen, Frank R. Ober, George Morris Piersol and Derrick Vail.

The Vice Chairman read a letter from the Chairman, Dr. John S. Coulter, in which he tendered his resignation as Chairman of the Council. The Council accepted the resignation with regret and voted that he be appointed Chairman Emeritus (Dr. Coulter died Dec 16, 1949). Dr. Frank H. Krusen was unanimously elected Chairman and Dr. Frank R. Ober Vice Chairman.

In a letter, Dr. H. B. Williams tendered his resignation as member of the Council. The Council reluctantly voted to advise the Board of Trustees to accept his resignation, and the Council members spoke highly of the valuable services he had rendered. Dr. Howard A. Rusk was elected to succeed Dr. Williams.

Dr. W. E. Garrey presented a report of the Committee on Scientific Research of the Council. Grants in aid of research were recommended for investigation of certain problems in clinical thermometry and of the use of radium D in ophthalmology. It was voted not to recommend grants for the investigation of glycol vaporizers or ultraviolet irradiation of the blood.

The Council voted that henceforward the groups of consultants should be designated as Advisory Committees. Definitions of the word "rehabilitation" were discussed, and it was voted that the following definition be adopted:

"Rehabilitation is the process of attempting to improve the health of handicapped people and returning them as useful members of society at the earliest possible moment."

The Committee on Field, Scope and Present Status reviewed the list of products considered by the Council. The Council voted not to consider artificial limbs, orthopedic mattresses, bed boards, bed cranes, hot pack heaters or gastroscopes. It was voted, however, to go forward with the critical consideration of certain mechanical bicycle exercisers. There was discussion of unsatisfactory advertising of disinfecting ultraviolet lamps, glycol vaporizers and certain hearing aids.

The Council heard reports on essential requirements for schools of physical therapy and schools of occupational therapy, on the work of the Therapeutic Trials Committee, radio programs arranged by the Bureau of Health Education, electrocardiographs, electroencephalographs, problems of electrical terminology as related to generators used in diagnosis and treatment, contact lenses and other ophthalmic devices and problems of illumination of schools and other buildings. After a report on American health resorts, the name of one health resort was added to the accepted list.

In connection with a report on artificial respiration, there was discussion of the place of electrical stimulation of the phrenic nerves among methods of resuscitation.

A report on audiometers and hearing aids noted that during the year 1949 the Advisory Committee and the Council considered 27 hearing aids and 5 audiometers. One hearing aid was removed from the list of accepted devices because of complaints about the misleading, unwarranted and exaggerated advertising used by the manufacturer.

The use of radon ointment and preparations of thorium X in dermatology, the use of radium in otology and of radium D in ophthalmology and the misuse of roentgen rays for epilation by unqualified operators were discussed in a report from the Advisory Committee on Roentgen Rays, Radium and the Medical Aspects of Atomic Energy. It was noted that the Council is cooperating in the development of a general Glossary of Nuclear Energy Terms under the auspices of the National Research Council.

The Council was informed of the progress of the *Handbook of Physical Medicine and Rehabilitation*, to be published April 19 by the Blakiston Company. Of the new chapters in this edition, five have not as yet been printed in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*. The chapters retained from previous editions have been revised and some completely rewritten.

The Council voted to express appreciation of the invaluable aid of the Advisory Committees and individual consultants in a statement to be printed in *THE JOURNAL*.

Attention was called to the fact that the Council will soon reach the quarter-century mark in its history and that the recent establishment of a Section on Physical Medicine and Rehabilitation in the American Medical Association by the Board of Trustees is an indication of the extent to which the Council has gained recognition for this important field of medicine.

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report

The Council wishes to express its appreciation for the valuable cooperation of the Advisory Committee on Electrocardiographs for its expert services. The Committee members are Drs Howard Burchell, George Fahr, Harold Feil, Harold E. B. Pardee, William D. Stroud and Carl J. Wiggers.

HOWARD A. CARTER, *Secretary*

MINIMUM REQUIREMENTS FOR ACCEPTABLE ELECTROCARDIOGRAPHS

(Revision)

1 The electrocardiograph shall be equipped with a suitable recording mechanism.

2 The recorded response of the instrument to externally applied square wave voltages shall be adjustable to a sensitivity of 1 cm per millivolt when this voltage is applied to the leads of the instrument through a series resistance of 2,000 ohms. This sensitivity shall be maintained without further adjustment within plus or minus 5 per cent for a period of three minutes under operating conditions. Operating conditions for the purpose of this requirement are defined (1) for alternating current operated instruments, as line voltages varying from 105 to 130 volts at frequencies within plus or minus 2 per cent of the specified value for the instrument and (2) for battery operation, as one or more of the batteries operating at 80 per cent of the rated life or voltage whichever condition occurs first. Under these conditions the response of the instrument to its incorporated standardizing signal of 1 millivolt shall be within plus or minus 5 per cent of the response to the externally applied test signal. The instrument shall incorporate means of superimposing its intrinsic test signal on the cardiographic tracing as recorded from any lead position. It must be possible to maintain this test signal voltage for a period of two or more seconds.

3 One centimeter response to one millivolt peak sinusoidal voltage variation up to 15 cycles per second shall not fall below

90 per cent and up to 40 cycles per second shall not fall below 80 per cent of the square wave response to equivalent voltage variation. The amplitude response of the instrument to 1 millivolt peak sinusoidal voltage variation up to 300 cycles per second shall not exceed 100 per cent of the square response to equivalent voltage variations.

4 The response of the instrument at 0.2 second after the application of a direct current of 10 millivolt shall not deviate more than plus or minus 10 per cent from the response at 0.04 second. The test voltage of 1 millivolt should be applied to the leads of the instrument through a series resistance of 2,000 ohms.

5 When the instrument is adjusted to the sensitivity specified in requirement 2 the recorded response shall be directly proportional to the applied voltage (direct current) within plus or minus 5 per cent over a range of 2 cm on either side of zero.

6 With the two input terminals connected together a potential difference applied between them and ground should not produce a deflection of more than 1 per cent of that produced by the same potential difference applied between the two input terminals.

7 The instrument shall incorporate a means of continuously recording time intervals on the record and this must be by means of a device operating independently of the record-driving mechanism. These intervals shall be of one second duration or less and the timing device shall be accurate within plus or minus 2 per cent. However, a means of superimposing this time signal on the electrocardiographic tracing at the operator's will will be accepted as fulfilling this requirement. It should be possible to record the time signal for a period of at least two seconds. Recording paper preruled so as to indicate time intervals, assuming a constant paper speed, shall not be construed as fulfilling this requirement.

8 All commercial instruments shall be approved as to shock hazard by the Underwriters' Laboratories, Inc.

9 Instruments shall be tested clinically and in the judgment of the Advisory Committee should produce records which are satisfactory for diagnostic purposes.

10 Instruments shall be submitted and considered according to the Official Rules of the Council on Physical Medicine and Rehabilitation.

11 The standards of merchandising and the acceptability of advertising shall meet the rules of the Council on Physical Medicine and Rehabilitation.

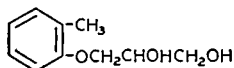
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R T STORMONT M.D., Secretary

MEPHENESIN—Oranixon (ORGANON)—3-*o*-Toloxyl-1,2-propanediol— $C_{10}H_{11}O_3$ —MW 182.21—The structural formula of mephenesin may be represented as follows:



Actions and Uses—Mephenesin a synthetic cresol glyceryl ether, produces transient relaxation and paralysis of skeletal muscle in small laboratory animals. It depresses reflex excitability of nerve centers and potentiates barbiturate anesthesia. In doses which do not cause paralysis or narcosis, it antagonizes the action of strychnine.

The drug is quickly destroyed in the body and has a low toxicity. Intravenous injection of a 10 per cent concentration will cause hemolysis of red cells with hemoglobinuria.

The drug acts on the reflex centers of the brain and spinal cord and in high doses depresses cortical cell function and transmission of nerve impulses across synapses. Although the effects of mephenesin resemble those of curare, the mechanism of action

is different. High concentrations of mephenesin have local anesthetic properties. Thus oral administration may cause transient anesthesia of the oral mucosa.

Although the use of the drug is still largely experimental, its low toxicity permits its cautious trial for the production of muscular relaxation in light surgical anesthesia if it is remembered that it may potentiate the action of barbiturates. It may also be tried in the treatment of spasticity and tremor of Parkinson's disease, in the treatment of muscle spasm in certain cases of hemiplegia, tetanus and certain other spastic conditions and in the treatment of athetoid or choreiform movements.

The effects of mephenesin are quite temporary and since little is known of its chronic toxicity, prolonged use requires constant watch for possible untoward effects. It should be used as an adjunct to surgical anesthesia only by those with special experience in the field.

Dosage—For adults, 1 Gm given orally three to five times a day. The dosage should be spread evenly throughout the waking hours. If a favorable response is not seen within 72 hours, the drug should be discontinued.

Tests and Standards—

Physical Properties Mephenesin is an odorless crystalline white powder which melts between 67 and 72°C. It is freely soluble in alcohol, chloroform and ether, and sparingly soluble in benzene and water. The μ of a saturated solution is about 6.0. The extinction coefficient $E(1\% \text{ 1 cm})$ at 2700 Å is 81 ± 3 .

Identity Tests Dissolve about 10 mg of mephenesin in 10 drops of sulfuric acid; a pink color develops (presence of easily carbonizable substances). Add 1 drop of 3 per cent formaldehyde solution; an intense red color develops.

Suspend about 0.1 Gm of mephenesin in 2 ml of 5 per cent sodium hydroxide and add 2 ml of potassium permanganate T.S. Warm the mixture until the green color changes to brown; add 5 ml of water and filter the mixture. To the filtrate add a few drops of diazotized *p*-nitroaniline solution (free of nitrous acid); a deep red color results which is discharged when the solution is acidified with diluted hydrochloric acid (presence of a phenolic group).

Purity Tests Dissolve about 0.1 Gm of mephenesin in 10 ml of water; the solution is clear and colorless. Dry about 1 Gm of mephenesin accurately weighed in a vacuum over phosphorus pentoxide at room temperature for 24 hours; the loss in weight is not more than 0.5 per cent.

Char about 1 Gm of mephenesin accurately weighed. Cool; add a few drops of sulfuric acid to the charred mass and ignite; the amount of residue is not more than 0.1 per cent.

Assay Accurately weigh about 0.150 Gm of mephenesin; transfer it to a 1000 ml volumetric flask and make up to the mark with water. Transfer 100 ml of this solution to a 250 ml volumetric flask and make up to the mark with water to give a final concentration of about 0.06 mg per ml. Spectrophotometrically determine the light absorption at 2700 Å. The extinction coefficient $E(1\% \text{ 1 cm})$ at 2700 Å is 81. The amount of mephenesin present is not less than 98 nor more than 102 per cent.

MEPHENESIN TABLETS **Identity Tests** The tablets respond to the identity tests given in the monograph for Mephenesin.

Assay Accurately weigh 20 tablets; calculate their average weight and grind them. Accurately weigh a sample of the powder equivalent to 1 Gm of mephenesin and transfer it to a 1000 ml volumetric flask. Fill to the mark with water and shake the flask for 1 hour. Filter the mixture through a dry filter paper; discard the first 50 ml of filtrate. Transfer 50 ml of the filtrate to a 1000 ml volumetric flask and make up to the mark with water to give a final concentration of 0.050 mg per ml. Measure the light absorption at 2700 Å as described in the monograph for Mephenesin. The amount of mephenesin present is not less than 95 nor more than 105 per cent of the labeled amount.

MEPHENESIN ELIXIR **Identity Tests** The extracted mephenesin (see assay) melts between 67 and 72°C and responds to the identity tests given in the monograph for Mephenesin.

Assay (Mephenesin) Pipet 25 ml of the elixir into a 250 ml separatory funnel and extract once with 50 ml and then 3 times with 25 ml of chloroform. Combine the extracts and wash them with three 25 ml portions of saturated sodium chloride solution. Combine the washings and extract them with two 15 ml portions of chloroform. Combine all the chloroform extracts in a 250 ml beaker and carefully evaporate the chloroform on a steam bath in a current of air until a thick syrup remains. Cool the residue; add 25 ml of ether and decant the ether layer into a 250 ml separatory funnel. Repeat the extraction and decantation with three 10 ml portions of ether. Rinse the beaker with three 10 ml portions of water and add the water extracts to the ether extracts. Shake the extracts; then separate the ether and water layers. Wash the ether layer with three 15 ml portions of water. Combine the washings and extract them with two 25 ml portions of ether. Combine all the ether extracts in a tared 250 ml beaker and evaporate the ether in a steam bath in a current of air. Dry the residue at 105°C for 30 minutes and then in a vacuum oven for 4 hours. Weigh the extracted mephenesin. The amount of mephenesin present is not less than 90 nor more than 110 per cent of the labeled amount.

(Alcohol) Determine the alcohol content by the method of USP XIII p. 615 using 50 ml of the elixir. The amount of alcohol present is not less than 100 nor more than 110 per cent of the labeled amount.

ORGANON, INC. ORANGE, N. J.

Elixir Oranixon 237 cc, 473 cc and 378 liter bottles. A 20 per cent alcohol solution containing 0.1 Gm of mephenesin in each cc. Preserved with 0.037 per cent of methylparaben USP and 0.025 per cent of propylparaben USP.

Tablets Oranixon 250 mg

THE JOURNAL OF THE
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CAROTID SINUS SYNDROME

Knowledge of the role of the carotid sinus reflex in regulating and controlling the endovascular blood pressure is due chiefly to the researches of Hering. These researches, confirmed by those of Heymans and de Castro, demonstrated that the dilated portion of the bifurcation of the common carotid artery is richly supplied with sensory receptors which originate in the adventitia and leave the sinus as the sinus nerve of Hering or the intercarotid nerve of de Castro to join the glossopharyngeal nerve. Thus, afferent direct nerve connection exists between the carotid sinus and medullary centers.

Weiss and Baker¹ demonstrated that an abnormally sensitive carotid sinus mechanism can be responsible for attacks of unconsciousness and convulsions and that such attacks can be reproduced by pressure over one carotid sinus. These authors found in a study of 15 patients with hyperactive carotid sinus reflex that the attacks were associated with cerebral anoxemia resulting either from cardiac asystole or from a primary reflex depression of the blood pressure. The three motor pathways in man responsible for syncope involve the vagus nerve, the vasomotor depressor nerves or the central motor pathways. Three types of carotid sinus syndrome have been described. In the vagal type the symptoms, particularly the dizziness, fainting and weakness, result from cardiac asystole. The depressor type usually appears in association with one of the other two types. The symptoms result from primary reflex vasodilatation and secondary depression of the blood pressure entirely unrelated to cardiac slowing or any form of cardiac arrhythmia. In the cerebral type the symptoms result apparently from impulses which travel directly to the brain. Neither atropine nor epinephrine aborts or relieves the cerebral type of attack.

The type of carotid sinus reflex mechanism responsible for the symptoms in a given case can be determined by observation of the heart rate and the blood pressure during an induced attack and the effect of atropine sulfate or ephedrine.

1 Weiss S, and Baker J P. The Carotid Sinus Reflex in Health and Disease. Its Role in the Causation of Fainting and Convulsions, *Medicine* 12: 297 1933. Weiss, S, Capps R B, Ferris E B, Jr, and Munro, D. Syncope and Convulsions Due to a Hyperactive Carotid Sinus Reflex, *Arch Int Med* 58: 407 (Sept) 1936.

Sigler,² in a study of hyperactive cardioinhibitory reflex in a series of 1,151 male and 735 female subjects, found that the reflex occurs with greater frequency and in higher degrees of response in men than in women. The frequency and degree of response were increased as age advanced. The reflex occurs with the greatest frequency and the highest degree of response in coronary disease.

Nathanson³ found in a study of 115 patients with a hyperactive cardioinhibitory reflex that 77 (67 per cent) were without symptoms suggestive of carotid sinus syndrome. Thirty-four of 40 patients in whom cardiac standstill could be produced in response to mechanical stimulation of the carotid sinus showed evidence of coronary disease of the anginal type. Of Draper's 59 cases of carotid sinus syndrome 28 (47.5 per cent) showed evidence of hypertensive cardiovascular disease. In a recent communication Draper⁴ reports on 11 patients with carotid sinus syndrome of the cardioinhibitory type. Ten of these were men, 2 were in the eighth, 2 in the seventh, 5 in the sixth and 2 in the fifth decade. There was evidence of heart disease in 9 cases.

The pharmacologic treatment of the carotid sinus syndrome has been directed either toward blocking of vagal impulses by atropine or belladonna or toward establishment of independent ventricular rhythm by ephedrine. Removal of irritating physical and psychic factors and administration of phenobarbital are sometimes effective in the milder cases. In the severer cases attempts have been made to treat the syndrome by denervation of the carotid sinus. Craig and Smith⁵ practiced denervation of the carotid sinus in 13 patients. Of the 12 followed up, results were excellent in 4, good in 1, fairly good in 4 and poor in 3. Cattell and Welch⁶ feel that the surest way of denervating the carotid sinus is by section of the carotid sinus nerve and by extensive stripping of the common carotid artery, the internal and external carotid arteries and by removal of the intercarotid tissue. These authors performed a denervation operation on 3 patients. The follow-up in 1 patient 18 months and in 2 patients four years or longer after operation revealed no abnormal sensitivity over the carotid sinuses.

Awareness of the existence of the entity hypersensitive carotid sinus reflex should be of help in differentiation of syncopal and convulsive attacks due to petit mal and grand mal epilepsy, hysteria, Meniere's disease, narcoleptic and cataleptic seizures.

2 Sigler L H. Hyperactive Cardioinhibitory Carotid Sinus Reflex. Possible Aid in the Diagnosis of Coronary Disease, *Arch Int Med* 67: 277 (Jan) 1941.

3 Nathanson, M H. Hyperactive Cardioinhibitory Carotid Sinus Reflex, *Arch Int Med* 77: 491 (May) 1946.

4 Draper A J. The Cardioinhibitory Carotid Sinus Syndrome. *Ann Int Med* 32: 700 (April) 1950.

5 Craig W M and Smith, H L. The Surgical Treatment of Hypersensitive Carotid Sinus Reflexes. *Yale J Biol & Med* 11: 415 (May) 1939.

6 Cattell R B and Welch, M L. The Carotid Sinus Syndrome. Its Surgical Treatment, *Surgery* 22: 59 (July) 1947.

CANCER DIAGNOSTIC TESTS

There has been an arduous search for differences between persons with cancer and those who are cancer free—subtle differences in the blood, sputum, urine and various body chemicals. Cancer diagnostic tests are based on the belief that these differences are specific and that they can be measured with sufficient reliability and accuracy to serve as a ready means of case finding or diagnosis. The reception accorded to diagnostic tests has followed a discouraging pattern. Each new proposal generally is greeted with a flurry of enthusiasm, followed by sporadic trial, inconclusive results and then skepticism and frequently rejection—without the true worth of the test being assayable either from the original author's data or from the reports of those attempting to confirm his work.

Much of the confusion regarding the value of proposed diagnostic tests for cancer has stemmed from two basic failures: first, the failure to distinguish between the different purposes that tests may have, and to evaluate performance in terms of each purpose, and second, the failure to conduct the trial of the test under decisive conditions. The mistakes of the past can be avoided if the logic of diagnostic tests is thoroughly understood.¹ To avoid the first failure, it is essential to provide different standards of performance for tests having different purposes. The most important of these possible uses might be as follows: 1 To serve as a sensitive mass-screening device to distinguish cancer suspects in the asymptomatic, apparently healthy population. Such a test must be simple and inexpensive to apply and would serve to separate the population into two groups: those for whom the result of the test for cancer is negative and a small group in which results are positive and which then requires intensive examination for further diagnosis. 2 To establish or rule out the possibility of cancer in a patient with etiologically obscure symptoms. This class of tests would be especially helpful to practitioners. 3 To provide decisive evidence for differential diagnosis as to the nature of demonstrable pathology. Internists, surgeons and radiologists have great need for this type of test.

Confusion of these related but different purposes has resulted in much experimentation in which tests are tried out at the wrong level or at all three levels at once. While it is possible that a test may be devised to serve all three purposes, there is no *a priori* reason to assume it. The second major source of confusion is improper design of experiments. The value of a cancer diagnostic test for any purpose cannot be determined from a mass of data that provides test results for cancer patients without systematic regard for stage of disease, tissue site, pretreatment or post-treatment status or presence of other diseases. Controls in an experiment can be

considered normal only after examination has failed to reveal any disease, and they must be comparable to the cancer group in regard to variables such as age and sex distribution. Where the control group has diseases other than cancer, systematic consideration must be given to each disease, to the stages at which the disease interferes with the cancer test and to the frequency with which diseases at these stages are associated with problems of diagnosis.

The demand for a cancer diagnostic test is so great that every new procedure is in danger of premature exploitation. One recently proposed procedure that may have some merit as a cancer test unfortunately was given unwarranted lay and professional publicity before its clinical validity could be determined. The result has been a widespread public and professional demand for its immediate application and, consequently, commercial exploitation, without the consent of the original investigators. In these circumstances, tragic misinterpretations of the test results are inevitable. One can best define the potential usefulness of any proposed cancer diagnostic test by first stating the conditions under which it may be applied and by conducting a planned experimental evaluation that will provide data to measure the performance of the test under these conditions. Such an approach will prevent waste and disappointment and is in keeping with the modern attitudes of the more critical investigators who are interested in this and other fields. When favorable, even exciting, observations are made by the researchers, they should be given opportunity to offer their data for careful scrutiny without fear of immediate misapplication or exploitation.

Current Comment

BOY SCOUT JAMBOREE

The Second National Boy Scout Jamboree will be held at Valley Forge Park, Pennsylvania, June 27-July 7. There will be 40,000 Scouts and leaders in attendance to celebrate the fortieth anniversary of scouting and to strengthen the arm of liberty with a panorama of scouting pageantry and skills. Small delegations of Scouts are expected from Canada, Latin America, Europe and Africa. The problems of the jamboree will be equivalent to those of a city with 40,000 population. Officials from the Valley Forge Park Commonwealth of Pennsylvania, Philadelphia Metropolitan Area and the federal services have been requested to furnish assistance in matters pertaining to the solution of health and sanitation problems. Each Scout and leader is required to have a physical examination performed by a medical doctor and the results recorded on special forms provided for the jamboree. A successful smallpox vaccination within the past five years supported by a certificate is compulsory, tetanus

¹ Hamburger, F. Evaluation of Diagnostic Tests for Cancer. I. Methodology of Evaluation and Review of Suggested Diagnostic Procedures. *Cancer* 3: 143 (Jan.) 1950. Dunn, J. E. and Greenhouse, S. W. Principles and Criteria for the Development and Evaluation of Cancer Diagnostic Tests. unpublished data.

and typhoid inoculations are encouraged. All 40,000 Scouts and leaders will be given a recheck on their physical examination to ascertain whether the forms are properly filled out, to rule out contagious disease that may have developed since the original examination and to ascertain that each form has been signed by a medical doctor and not by a chiropractor, osteopath or other practitioner. It is the policy of the Boy Scouts of America to call on the medical profession for assistance and advice in all matters of health and safety. The Medical Society of Metropolitan Philadelphia will furnish volunteer physicians to assist with the rechecks. The jamboree will be organized into 32 sections, with 1,250 Scouts and leaders in each one. Three doctors will accompany each of the 32 sections. In each section there will be a health lodge or first aid station modestly equipped with supplies and six beds. The doctors will be responsible for the health and care of their section. Seriously ill Scouts will be hospitalized at nearby Armed Forces facilities. Scouts will prepare their own food, eliminating food handlers, contagious diseases should be at their annual low incidence. Numerous physicians and surgeons contribute their time and services to scouting. Those doctors who wish to volunteer their services or who wish to go to the jamboree as a sectional medical officer may contact the local Scout executive of their area for additional information. This is the type of leadership enjoyable to the younger citizens of this and other nations and deserves the continuing support of all communities, not just for a jamboree but throughout the year.

CHORIOCARCINOMA

Choriocarcinoma arises on the outside of the blastodermic vesicle which attaches the ovum to the maternal tissue. It may be associated with normal or abnormal pregnancy. Recently Park and Lees¹ in Edinburgh reported on the study of 23 cases observed by them and of 493 cases in the literature. They estimate the absolute incidence of choriocarcinoma to be 1 case in each 13,850 pregnancies, occurring between the ages of 20 to 40 years, most frequently at 25 to 29 years of age. The cells of the tumor being trophoblastic, that is, ectodermal tissue on the outside of the blastodermic vesicle, they produce a gonadotropic hormone which can be detected by suitable pregnancy tests. In a small proportion of cases spontaneous regression of a trophoblastic process may occur, especially if located in the vagina or the lungs. After the diagnosis is made, choriocarcinoma as a general rule ends in death on the average in about four months. Rarely spontaneous regression occurs, and in favorable cases it is possible that cure may follow removal.

PROTECTIVE MEASURES IN THE TUBERCULOSIS LABORATORY

Although incomplete, proof is now available of many frequently unrecognized dangers in the laboratory. The fact that such dangers are not confined to the observable accident is borne out by research at Camp Detrick, Md. Bacterial aerosols are released during such common operations as the removal of stoppers from dilution bottles, removal of wet plugs from broth culture tubes and removal of inoculum from the vaccine bottle with a hypodermic syringe. Pipetting, pouring and vigorous agitation of dilution blanks produce bacterial aerosols.¹ In view of the increasing use of cultural methods and animal inoculations in the laboratory diagnosis of tuberculosis, the Tuberculosis Laboratory Unit, Communicable Disease Center, Public Health Service,² has formulated certain safety procedures, realizing that they may be partly empirical but with the thought that improvements and changes will be made in time. Among the recommendations are thorough instruction on aseptic technic, handling specimens, cultures and animals, self care and decontamination, exhaust hoods with ultraviolet light and sterilizers, medical and health programs, physical and roentgen examinations, tuberculin tests, illness and accident reports, rest periods, proper and careful use of equipment, proper handling of animals, determination of sources of contamination and ways of decontamination, provision for personal procedures such as removal of coats and use of cleaning and sterilizing agents, safety signs, no smoking, adequate lighting, shower facilities, first aid kits, and protection against cresols and streptomycin to avert sensitivities. In the past laboratory technicians and investigators in sanatoriums were usually former patients who had a certain amount of protection from arrested disease, but now, since laboratories in health departments and research centers are obtaining more of their personnel from the general public, the risk would appear greater. Much evidence indicates that tuberculin-negative persons should not handle virulent organisms. Since selection of tuberculin-positive workers is not always possible, advantage may be taken of whatever protection BCG vaccination affords as it becomes available.

HEALTH INSURANCE PLAN OF GREATER NEW YORK

Elsewhere in THE JOURNAL is an article on the Health Insurance Plan of Greater New York. It has been accepted for publication solely for the information of the readers of THE JOURNAL and not because the plan has any official recognition of the American Medical Association or any of its offices. In fact, some of the proposals of the plan are not in accord with interpreted principles for voluntary health insurance adopted by the House of Delegates of the Association.

¹ Anderson, R. J. Protection of the Laboratory Worker, editorial. Pub Health Rep 65 463, 1950.

² Fish, C. H., and Spendlove, G. A. Safety Measures in a Tuberculosis Laboratory, Pub Health Rep 65 466, 1950.

¹ Park, W. W., and Lees, J. C. Choriocarcinoma, A General Review, with an Analysis of Five Hundred and Sixteen Cases. Arch Path 49 73 (Jan) 205 (Feb) 1950.

WASHINGTON NEWS

Health Insurance and Other Legislation

The Senate Labor and Public Welfare Committee is selecting a staff to handle a national survey of health insurance plans and state and local health services. In structure the idea is to make the staff as close to nonpartisan as possible, with a director acceptable to both Democrats and Republicans and assistant directors for each party. The survey must be completed by Feb. 1, 1951, so the material will be available when Congress again moves into the national health insurance question.

The next few weeks should tell the story on national health insurance for this session. There is no possibility of any bill of this nature being enacted but there is a possibility of hearings on a group of noncompulsory health insurance bills. Representative J. Percy Priest (Democrat, Tennessee), chairman of the House health subcommittee, is understood to have promised to hold such hearings before Congress closes. The question is whether extensive or restricted hearings are desired. If hearings are not scheduled until July, the prospects are that not many witnesses will be heard. Newspaper stories misinterpreted the stand taken by New York's Senator Herbert Lehman (D). Addressing a New York group, Senator Lehman said he "never has and never will" favor socialization of hospitals or the medical profession, which some reporters assumed meant opposition to the Truman Plan. Actually, its sponsors maintain that the Truman Plan is not socialized medicine. Senator Lehman's office confirmed that he is not opposing the Truman Plan. A new statement by the Democratic National Committee takes the same line. "In order to avoid socialized medicine in the United States" is the way it introduces its endorsement of the Thomas-Murray-Dingell Bill (S 1679). Legislatures of 13 states have passed resolutions advising Congress not to enact a national compulsory health insurance law. They are Alabama, Mississippi, Delaware, Massachusetts, Nebraska, Arkansas, Tennessee, Florida, Texas, Michigan, Maryland, Illinois and Utah.

With the House docket being cleared rapidly, the way may be opened for final legislative action on at least three important medical bills. S 522 for support of local public health units, S 1453 for aid to medical schools and S 1411 for establishing school health services on a nationwide basis. (A. M. A. has supported passage of S 522, it has not passed on the rewritten bill S 1453, and it opposes the section of S 1411 which provides for free treatment of children regardless of parents' ability to pay.) All these bills have passed the Senate. Whether they will be called up in the House depends largely on the wishes of the House leadership. However, if they are brought out on the House floor, it is likely they will have to be thrown open to amendment, this could mean radical changes in the legislation. These bills have progressed so far in the legislative mill that, under favorable conditions, they could become law on short notice.

Rehabilitation of Handicapped Persons

The question of how much money the federal government should spend to rehabilitate physically handicapped persons has been thoroughly discussed before two Senate subcommittees. Although discussions centered around two pieces of legislation which may be allowed to die when this Congress adjourns, the hearings turned official attention to the broad problem.

Expert witnesses spread facts before the Senators. One million and a half handicapped persons receiving no rehabilitation whatever, the grouping of the aged, the chronically ill and the handicapped persons in some state institutions with no thought of rehabilitation or even segregation, the phenomenal employment records of properly rehabilitated persons, their proved ability to pay back in federal income taxes \$10 for every dollar the government spent on their rehabilitation, the economic loss through enforced idleness of partially handicapped persons, the prospect for the future, specifically that by 1980 there will be one aged, chronically ill or handicapped person

for every wage earner unless something is done about the situation.

Dr. Howard Rusk, director of the Institute of Physical Medicine and Rehabilitation, New York University and Bellevue, was the final witness on S 2273, which proposes to center all rehabilitation work in the Federal Security Agency. Dr. Rusk addressed himself to the question of what to do about these persons. He said the country was properly rehabilitating less than 10 per cent of its physically handicapped and that one of the great problems was the shortage of personnel trained in this work, particularly physicians. "We have to go back to the medical schools," he told the Senators, "and teach more medical students these techniques. Also, we have to see that they learn to get the same lift out of rehabilitating a physically handicapped person as they would out of diagnosing some obscure tropical disease." The other major obstacles to a successful program, he said, were lack of proper hospital and clinic facilities and ignorance on the part of the physically handicapped themselves as to their rights to treatment under federal and state laws.

The subcommittee is trying to decide whether to recommend turning over all this work to FSA, to shift it to the Labor Department or to create a special commission for the physically handicapped. Subcommittee Chairman Paul H. Douglas (Democrat, Illinois) indicated he was not too impressed with the assignment. Speaking of FSA and Labor he said "They are two agencies struggling fiercely for possession of the body each insists on being boss just try to get government departments to work together they are specialists in noncooperation with each other."

Senator Douglas is also a member of the other subcommittee concerned with S 3102, which would help states supply educational facilities for physically handicapped children. Under the bill federal funds would be channeled into this work at the rate of \$4,000,000 the first year, building up to \$16,000,000 after three years. Senator Douglas said he does not expect this bill to reach the Senate floor this session.

Deaths of House Members

Two members of the House of Representatives whose names have figured in medical legislation died within the last two weeks. Representative John Lesinski, (Democrat, Michigan) died unexpectedly at his home in Dearborn, Mich. He was chairman of the Education and Labor Committee, which has handled certain fringe medical legislation. His successor as chairman is expected to be Representative Graham A. Barden (Democrat, North Carolina). It was Mr. Barden, incidentally, who sponsored a public-school-only aid bill, thereby blocking committee action on Mr. Lesinski's bill for assistance to public and private schools. This is considered one of the important factors in delaying further action on the school health services bill S 1411. The other death was that of Representative William Lemke (Republican, North Dakota), a consistent advocate of legislation to forbid vivisection. His most recent bill on this subject, H. R. 857, still is before Congress.

Chiropractic Care

At a House Veterans Affairs Committee hearing the A. M. A. opposed recognition of chiropractic care by the Veterans Administration (H. R. 1512). The A. M. A. statement pointed out that although the bill requires chiropractors to be graduates of an institution approved by the administrator, chiropractic is not taught in any university or college supported by public funds. The statement also noted that the theory of chiropractic does not recognize a relationship between bacteria and disease and that it ignores our highly scientific and well established theories of etiology of diseases. The federal government, A. M. A. argued, should not be in the position of recommending to its disabled veterans a form of treatment which obviously is not the best.

ORGANIZATION SECTION

Official Notes

RESOLUTIONS TO BE PRESENTED TO HOUSE OF DELEGATES

The Secretary of the Association has been informed that the following resolutions will be introduced in the House of Delegates at San Francisco by delegates of the Ohio State Medical Association

Resolutions on Single Membership Classification

WHEREAS There is constantly growing confusion misunderstanding and criticism among the members of the American Medical Association regarding Fellowship, and

WHEREAS, A classification of members known as Fellows is, in the opinion of many members, unnecessary, and

WHEREAS The relationship between the American Medical Association and its members would be improved by establishing a single membership classification in order that all members would receive uniform benefits in return for their annual membership dues therefore be it

Resolved That the House of Delegates of the Ohio State Medical Association in session May 16 17 and 18 1950, favors a single membership classification in the American Medical Association, requests the Board of Trustees of the American Medical Association to prepare appropriate amendments to the Constitution and By Laws and to submit the same to the House of Delegates for action and recommends that serious consideration be given to formulating a feasible plan whereby each member would receive THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION as a part of his all inclusive membership benefits and be it further

Resolved That Ohio's delegates to the American Medical Association are herewith instructed to present this resolution to the House of Delegates of the American Medical Association at the 1950 annual session in San Francisco

Resolutions on Enforcement of Principles of Medical Ethics

WHEREAS, Chapter III Article VI, Section 6, of the recently adopted revised Principles of Ethics of the American Medical Association reads

'A physician should not dispose of his professional attainments or services to any hospital lay body, organization group or individual by whatever name called or however organized, under terms or conditions which permit exploitation of the services of the physician for the financial profit of the agency concerned. Such a procedure is beneath the dignity of professional practice and is harmful alike to the profession of medicine and the welfare of the people, and

WHEREAS The committee known as the "Hess Committee" reported to the American Medical Association House of Delegates in Atlantic City in June 1949 in detail regarding the practice of medicine by hospitals, and

WHEREAS, The "Hess report" in one paragraph stated in explanation as follows 'Therefore hospitals and medical schools cannot charge patients fees for medical services rendered by physicians even though the physicians are full time employees of an individual or institution and

WHEREAS The "Hess report" was adopted by the American Medical Association House of Delegates and the Trustees of the American Medical Association were instructed to enforce the principles and obligations involved, and

WHEREAS, The House of Delegates of the American Medical Association in Washington in December 1949 reaffirmed its belief in and confirmed the principles stated in the 'Hess report' and directed that action by the Trustees be deferred only until all legal requirements were met in order to insure that all actions taken shall comply with the law and

WHEREAS, The Trustees of the American Medical Association are to report to the House of Delegates in June 1950 regarding this matter and the 'Hess Committee' is to report its further study, therefore be it

Resolved, That the House of Delegates of the Ohio State Medical Association confirms the action of the American Medical Association House of Delegates regarding the reaffirmation of the principles of the so-called "Hess report", and be it further

Resolved, That the House of Delegates of the Ohio State Medical Association requests the American Medical Association House of Delegates to expedite action and implement methods that will enforce Section 6, Article VI Chapter III of the Principles of Medical Ethics without delay and be it further

Resolved That our delegates to the American Medical Association are hereby instructed regarding these desires and requested to work for their fulfillment

NEW SERIES OF ELECTRICAL TRANSCRIPTIONS

The Bureau of Health Education announces the release June 15, 1950 of a new series of electrical transcriptions, entitled "Tea for Three"

Two of Chicago's outstanding radio personalities, Elizabeth Hart and her husband, Louis Roen, together with Dr W W Bauer, Director of the Bureau, present a series of 13 tape-recorded interviews conducted informally without script. The

ostensible excuse for the interview is that the doctor is invited by the Roens for tea for three in order to answer health questions which have arisen in the minds of the Roens and their friends

Miscellaneous questions and answers are built around the central theme for each program. The principal topics are (1) headache, (2) insomnia, (3) feet, (4) weight, (5) rheumatism, (6) relaxation, (7) teeth, (8) posture, (9) accidents, (10) colds, (11) exercise, (12) vision and hearing aids and (13) skin

These programs were tape recorded in the studios of the National Broadcasting Company in Chicago and transferred to radio transcription disks in the Mutual Studios, New York. General and medical supervision and production were by Dr W W Bauer, Harriet Hester of Marshall-Hester Productions was the editor. This is series 24 in the electrical transcription library of the Bureau of Health Education

These programs will be available on and after release date to county medical societies, which will make the local arrangements for broadcasting. A supply of these disks will be sent automatically from the factory to the twelve state medical societies which are subcenters for distribution. Similar arrangements may be made by any state medical society. The Bureau of Health Education will furnish full information on request.

Coming Medical Meetings

American Medical Association San Francisco June 26 30 Dr George F Lull 535 North Dearborn St. Chicago 10 Secretary

American Association for the Surgery of Trauma, Salt Lake City, June 22 24 Dr Charles G Johnston 1512 St Antoine St. Detroit 26 Secretary

American College of Chest Physicians, San Francisco June 22 25 Mr Murray Kornfeld 500 N Dearborn St Chicago 10 Executive Secretary

American College of Radiology San Francisco June 25 Mr William C Stronach 20 N Wacker Drive Chicago 6 Executive Secretary

American Dermatological Association Jasper National Park Alberta, Canada June 18 22 Dr Louis A Brunsting 102 Second Ave. SW Rochester Minn Secretary

American Diabetes Association San Francisco Hotel Whitcomb June 24 25 Dr John A Reed 1 Nevins St Brooklyn 17 Secretary

American Heart Association San Francisco Fairmont Hotel June 22 25 Dr John J Sampson 1775 Broadway, New York 19 Secretary

American Medical Women's Association Carmel Calif June 20 22 Dr Grace Talbott 909 Hyde St San Francisco 9 Secretary

American Proctologic Society Los Angeles July 15 Dr W Wendell Green 1838 Parkwood Ave., Toledo 2 Ohio Secretary

American Rheumatism Association San Francisco, Fairmont Hotel June 23 24 Dr Charles Ragan, 620 W 168th St., New York 32 Secretary

American Society for the Study of Sterility San Francisco Sir Francis Drake Hotel June 24 25 Dr John O Homan 490 Post St. San Francisco 2 Secretary

Association for the Study of Internal Secretions San Francisco June 23 24 Dr Henry H Turner 1200 N Walker St., Oklahoma City 3 Secretary

Conference of Presidents and Other Officers of State Medical Associations San Francisco Palace Hotel, June 25 Mr John E Farrell 106 Francis St Providence R I Secretary

Medical Library Association Boston June 19 22 Miss Helen Hlavac, 209 East 23d St New York 10 Secretary

Montana State Medical Association Bozeman, Gallatin County High School July 9 12 Dr Herbert T Caraway, 115 N 28th St., Billings Secretary

Western Association of Industrial Physicians and Surgeons, San Francisco June 25 Dr Christopher Leggo C. & H Sugar Refining Corp Crockett Calif Secretary

West Virginia State Medical Association, White Sulphur Springs The Greenbrier July 27 29 Mr Charles Lively P O Box 1031, Charleston 24 Executive Secretary

International Meetings

International Anatomical Congress, Oxford, England, July 25 28 Secretary, Miss A M Maynall, Department of Human Anatomy, University Museum Oxford England

International Association for the Prevention of Blindness London England, July 17 21 Prof P Bailliant, 47 rue de Bellechasse Paris France, Chairman

International Cancer Research Congress, Paris, France July 17 22 Secretary, 6 Ave Marceau Paris 8 France

International Congress of Ophthalmology, London, England, July 17 21 Mr Keith Lyle 45 Lincoln's Inn Fields London WC2 England Secretary

International Congress of Radiology London England July 24 28 Dr J W McLaren 45 Lincoln's Inn Fields London WC2, Secretary General

International Pediatric Congress Zurich Switzerland, July 24 28 Dr L Emmet Holt Jr, 477 First Ave New York City 16, Secretary General

International Union Against Venereal Diseases, Zurich Switzerland July 29 Aug 2 Dr A Cavaillon, Institut A Fournier, 25 Blvd St Jacques Paris 14em, France Secretary

GOVERNMENT SERVICES

Navy

Offer 200 Internships to 1951 Graduates

The Surgeon General announces that 200 rotating internships in naval hospitals will be available to qualified medical school students who will graduate in 1951. Applications for the naval internships will be accepted beginning Dec. 19, 1950, in accordance with the Association of American Medical Colleges' cooperative plan for appointment of interns. However, a naval intern must meet all requirements for commission in the Medical Corps of the Naval Reserve, it is necessary, therefore, that applications for Naval Reserve commissions be submitted prior to December 19. Prospective applicants should visit the Naval Officer Procurement office nearest their homes as soon as possible and apply for a Naval Reserve commission, so that this application may be processed well in advance of Feb 20, 1951, the deadline for notification of successful internship candidates. Internship candidates will be notified of their selection or nonselection for the program. Selected candidates will be notified by telegram not earlier than Feb 20, 1951. At the same time, they will be notified of the naval hospital to which they will be assigned for their intern year.

Candidates for naval internship are selected from volunteers who agree to serve a minimum of 24 months of active duty from the date of commencement of their intern training. Appointees are commissioned lieutenant (junior grade) in the Medical Corps of the Naval Reserve. On graduation from medical school they receive the pay and allowance of their rank while serving as interns and on active duty. When ordered to other duty on completion of internship, they also qualify for an additional compensation of \$100 per month. Other benefits include a \$250 uniform allowance, reimbursement of transportation cost for dependents and household effects from their home to station of duty, retirement benefits and an opportunity for later advanced professional training. Information concerning the program may be obtained from any office of Naval Procurement or the Personnel Division, Bureau of Medicine and Surgery, Navy Department, Washington 25, D C.

Training for Reserve Entomologists and Malariologists

A two week training course for Naval Reserve officers of the Medical Service Corps (Allied Medical Science) who are entomologists and malariologists will convene on the first and third Wednesday of each month from July 1950 to June 1951,

at the Navy's Malaria and Mosquito Control Unit 1, U S Naval Air Station, Jacksonville, Fla. This program will provide an opportunity for a number of Naval Reserve personnel to receive two weeks' annual training duty. The curriculum has been designed to present the latest information concerning the needs, methods and operation of insect and pest control problems. Those eligible are inactive Naval Reserve entomologists and malariologists residing in the 1st, 3rd, 4th, 5th, 6th, 8th and 9th naval districts and the Potomac River Naval Command. Requests for this annual training duty should be submitted to the local naval district commandant.

Certified by Boards

Comdr Lester J Pope (MC, USN) has the honor of being the first certified gastroenterologist in the Naval Medical Corps. He has been certified also by the American Board of Internal Medicine.

The following officers have been certified by American boards:

Comdr Melville M Driskell American Board of Internal Medicine.
Comdr H V O'Connell American Board of Pathology in Pathologic Anatomy.
Comdr Ralph Volk American Board of Internal Medicine.

Lecture at Medical Center

The seventh and final lecture in the current series of guest lectures held at the Navy Medical Center, Bethesda, Md. was presented May 29 by Dr Thomas M Durant, professor of clinical medicine, Temple University Medical School, Philadelphia. His subject was "Dyspnea: Its Significance and Interpretation." These lectures are open to members of local medical societies and medical officers of other governmental services. They will be continued in the fall.

National Board of Medical Examiners

Dr Howard Thomas Karsner, medical research advisor to the Surgeon General and to the director of the Research Division of the Navy's Bureau of Medicine and Surgery, was selected president, for a term of three years, of the National Board of Medical Examiners at its recent annual meeting. At the same meeting Rear Admiral H L Pugh (MC) was reelected as a member of the Executive Committee of the National Board of Medical Examiners.

Veterans Administration

Neuropsychiatric Hospital at Van Nuys, Calif

The 1,000 bed neuropsychiatric hospital authorized for the Veterans Administration in the Los Angeles area will be built on the site of the present VA hospital at Van Nuys, Calif. Work on the new hospital will be pushed as rapidly as possible. Clearing of the Van Nuys site of temporary buildings will be started as soon as patients and equipment in the hospital can be evacuated. The patients will be moved to the naval hospital at Long Beach, Calif, which was taken over by the VA on June 1. In addition to the most modern facilities for neuropsychiatric treatment the new 1,000 bed hospital will have a complete general medical and surgical section, which will include a staff especially qualified to give emergency treatment to paraplegic patients. Their services will be available to eligible paraplegics living in the San Fernando Valley. The decision to locate the new hospital on the Van Nuys site is said to have been based on careful studies of all possibilities and was reached on the basis of service to sick and disabled veterans and economy of expenditure.

Nineteen Million Veterans

A statistical summary of VA activities on April 30 showed a veteran population of 19,061,000, of which 15,358,000 were World War II veterans. The hospitalized veterans with service-connected disabilities totaled 36,454 and the hospitalized veterans with non service connected disabilities, 70,616. Applicants eligible for hospitalization, whose admission had not been scheduled, totaled 27,369.

Personal

Dr Clifton H Smith and Dr John H Hood will become managers of the VA hospitals at Augusta and Atlanta, Ga. respectively. Dr Smith is a graduate of the University of Vermont College of Medicine and has been with the VA for many years. Dr Hood who has been with the VA since 1930 except for three years during World War II when he served in the Army Medical Corps is a graduate of the University of Georgia Medical School (1925).

Public Health Service

Electrokymographic Conference

The first Electrokymographic Conference was held May 25-26 at the National Institutes of Health, Bethesda, Md. The electrokymograph, a new instrument for the study of cardiovascular diseases, was developed by Public Health Service research investigators working in cooperation with Temple University Medical School research investigators. Dr M J Oppenheimer of Temple University was chairman of all sessions except the closing session, when Dr R Morgan of Johns Hopkins University was in charge. Speakers from Philadelphia were Drs G C Ring, Joan Long, W E Chamberlain and George Henny, all from Temple University, and Dr Calvin Kay from the University of Pennsylvania Hospital. Public Health Service personnel addressing the conference were Drs Freeman Rawson Jr and Victor A McKusick from the Baltimore Marine Hospital and Drs Wm F Oliver and B R Boone and Mr F W Noble from the National Heart Institute. Other speakers were Dr S Dack, Mount Sinai Hospital, New York City, Dr H E Heyer, Southwestern Medical College, Dr A Luisada, Chicago Medical College, Dr Philip Samet, New York City, Dr Frank Barrera, University of Cuba, and Dr A Henry Clagett, Wilmington, Del.

Short Laboratory Courses

Three short courses in the laboratory diagnosis of parasitic diseases will be given by the Communicable Disease Center of the Public Health Service in Atlanta, Ga. The first course was held June 12-16. The course is designed for laboratory directors and others performing similar work to familiarize them with the available diagnostic techniques and to enable them to better evaluate laboratory results. Laboratory Diagnosis of Parasitic Diseases will be given in two parts: part 1, Intestinal Parasites, will be held September 18-October 6, part 2, Blood Parasites, will be held October 9-October 27. These courses are designed to develop proficiency of laboratory personnel actually performing examinations or determining final identification.

Applicants from laboratories of state and local public health departments will be given first consideration for the courses, but applicants from hospitals and nonprofit laboratories will be eligible when vacancies exist. There is no tuition charge or laboratory fee for the course, but travel and living expenses must be arranged and paid by the individual or his employer. Applicants are requested to apply well in advance. Information forms may be obtained from the Laboratory Division, Communicable Disease Center, 291 Peachtree Street, N E, Atlanta, Ga.

Census of Mental Patients

At the end of 1947 there were about 675,000 patients resident in all mental institutions, or 471.8 persons out of every 100,000 in the civilian population, according to a report released by the National Institute of Mental Health. The census includes patients in 810 public and private hospitals and institutions for the mentally ill and handicapped (plus data on patients in hospitals of the Veterans Administration and other federal hospitals) including 203 public and private institutions for mental defectives and epileptics. More than one million persons were reported to have received treatment in these institutions during 1947.

Out of the total resident patient population in all mental institutions at the end of 1947, close to 550,000 (384.1 per 100,000 population) were in hospitals for mental disease and in the psychiatric wards of general hospitals and about 125,000 (87.7 per 100,000 population) were in institutions for mental defectives and epileptics. In 1947 there were 1,592 full time staff physicians with a patient load per staff physician of about 276 patients. This is about double the patient load of 129 patients which would obtain if the standards of the American Psychiatric Association were met. There is also a shortage of physicians with psychiatric training in these institutions. Of 1,592 full time staff

physicians, 570, or 35.8 per cent, were members of the American Psychiatric Association and 242, or 15.2 per cent, were specialists certified by the American Board of Psychiatry.

The report includes an introduction tracing the history of the collection of mental health statistics in the United States and gives information on additional data available on request from the National Institute of Mental Health. Copies of the report may be purchased for 50 cents from the Superintendent of Documents, U S Government Printing Office, Washington 25, D C.

Midwestern Communicable Disease Center

The Public Health Service has established in Kansas City, Mo., an office of midwestern communicable disease center to furnish states of the surrounding area with a variety of public health facilities not previously available on a large scale. Dr R A Vonderlehr, medical director in charge of the communicable disease center, with headquarters in Atlanta, said: "The office of midwestern CDC services has two major purposes. It furnishes assistance to state and local health departments and to Public Health Service regional offices in the control of communicable diseases. It also conducts field research on special important disease problems." The diseases being studied include encephalitis, fungus infections, malaria, rat-borne diseases, rabies, brucellosis, Q fever and diarrheal diseases. Another disease problem under investigation at the Office of Midwestern CDC Services is that of histoplasmosis, a fungus disease of the lungs, which frequently is mistaken for tuberculosis. The Public Health Service release stated, "It is estimated that in the area between Kansas and Ohio there may be as many as 15,000,000 persons infected with the disease."

GS-16 Civil Service Positions

The National Institutes of Health was granted 10 of the 300 positions recently assigned to the new GS-16 classification by the Civil Service Commission. The 400 new top administrative classifications of GS-16, 17 and 18 were established under the Classification Act of 1949. The beginning salary for GS 16 positions is \$11,200. The positions placed in the new classification are:

EXPERIMENTAL BIOLOGY AND
MEDICINE INSTITUTE
Endocrinologist
Biophysicist (Radiation Physics)
Steroid Chemist

MICROBIOLOGICAL INSTITUTE
Medical Officer (Immunology)
Medical Officer (Virologist)

NATIONAL CANCER INSTITUTE
Biochemist
Scientific Director

NATIONAL HEART INSTITUTE
Biochemist

NATIONAL INSTITUTE OF
MENTAL HEALTH
Director of Clinical Research
Physiologist (Neurology)

The first of the positions to be filled was that of biochemist at the National Cancer Institute. Dr Jesse P Greenstein, formerly chief of the Biochemistry Section of the National Cancer Institute, was appointed to the position soon after the Civil Service Commission approved the 10 new grades.

Appointment of Dr Sunderman

Dr F William Sunderman, who has joined the staff of the Communicable Disease Center of the Public Health Service, will be in charge of the clinical pathology section of the Laboratory Services Division and will be concerned with formulating standardized methods in laboratory medicine. Formerly he was professor of experimental medicine and clinical pathology in the Postgraduate Medical School of the University of Texas and director of clinical research of the M D Anderson Hospital for Cancer Research in Houston. He has also held posts with the Office of Scientific Research and Development, Brookhaven National Laboratory and Los Alamos Atomic Energy Laboratory. Dr Sunderman received his medical degree from the University of Pennsylvania. He is president-elect of the American Society of Clinical Pathologists, a trustee and vice president of the American Board of Pathology and a former governor of the College of American Pathologists.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest such as relate to society activities new hospitals, education and public health Programs should be received at least two weeks before the date of meeting)

ARKANSAS

State Medical Election—The Arkansas Medical Society at its annual meeting in April selected the following officers: Drs Earle H. Hunt, Clarksville, president; Charles R. Henry, Little Rock, president-elect; Frederick H. Krock, Fort Smith, Ross E. Fowler, Harrison, and George L. Hardgrave, Clarksville, first, second and third vice presidents, respectively; Daniel H. Autry, Little Rock, secretary; and William R. Brooksher, Fort Smith, delegate to the American Medical Association with Joseph F. Shuffield, Little Rock, as alternate.

CALIFORNIA

Course in Diagnosis and Therapy of Cancer—The University of California has announced a postgraduate course in the diagnosis and therapy of cancer, including clinical surgery, radiation therapy and endocrine therapy to be presented July 17-22 at the General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles. It is limited to graduates of medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association. Details may be obtained from the Office of Medical Extension, University Extension, University of California, Los Angeles 24. The fee for the course is \$100.

ILLINOIS

Personal—Dr. Roland I. Pritikin, Rockford, has been named official delegate to the Sixteenth International Congress on Ophthalmology meeting in London, England, July 17-21. He will have a slide exhibit at the congress on "Bacteriology of Ocular Infections in the Midwest." He is also serving as official delegate for the Association of Military Surgeons at the Congress. Dr. Pritikin is a colonel in the Medical Corps of the U. S. Army Reserve.

Chicago

Society News—The new officers for the Chicago Society of Allergy, elected May 15, are as follows: Drs. Townsend B. Friedman, president; Theron G. Randolph, president-elect; and Milton M. Mosko, secretary-treasurer.

Grant for Study of Liver Diseases—The Hektoen Institute for Medical Research of the Cook County Hospital has received a grant of \$12,300 from the Dr. Jerome D. Solomon Memorial Research Foundation. This sum represents the fourth renewal of a grant for the study of liver diseases carried out by Dr. Hans Popper, scientific director of the institute, and co-workers.

The Basil Harvey Fund—The Basil Harvey Fund has been established at the University of Chicago by a group representing Dr. Basil C. H. Harvey's former students, colleagues and friends to honor his almost half-century of service to medical education. This will be a revolving loan fund for both undergraduate and postgraduate students of medicine. Dr. Harvey came to the University of Chicago and Rush Medical College in 1901 as assistant in anatomy after three years in general practice. In 1917 he became professor while serving as major in the medical department with the AEF in France, where he was with the 13th Base Hospital (Presbyterian Hospital Unit). Dr. Harvey was appointed dean of the College of Science in 1921, dean of medical students in 1923 and dean of students in the Division of Biological Sciences in 1931, the last position he held until his retirement in 1940 and to which he returned in 1943 during the second World War.

KANSAS

Dr. Proud to Head Department—Dr. G. O'Neil Proud, instructor in the department of otolaryngology at Washington University School of Medicine, St. Louis Mo., has been appointed chairman of the department of otolaryngology at the University of Kansas School of Medicine, Kansas City, effective July 1. Dr. Sam E. Roberts, chairman of the department since 1928, who has been made chairman emeritus, will devote his time to private practice. Dr. Proud received his medical degree from Washington University in 1939 and has served on the staffs of St. Louis Children's and Barnes hospitals. He is a lieutenant in the U. S. Naval Reserve.

KENTUCKY

Medical Seminar—The third annual Medical Seminar of the University of Louisville School of Medicine was conducted June 12-13 at the Brown Hotel. Dr. Herbert L. Clay Jr., director of postgraduate training, was in charge of arrangements. The program was planned by the university in cooperation with the Kentucky State Medical Association, the Jefferson County Medical Society, the American Red Cross, the National Foundation for Infantile Paralysis and the American Academy of General Practice.

Anniversary of Blood Center—The first anniversary of the opening of the Regional Blood Center in Louisville was observed May 20 with ceremonies in Lincoln Park honoring the 22,000 blood donors from 28 counties in Kentucky and Southern Indiana. Certificates were awarded to 70 firms and organizations which have met voluntary blood quotas and to 20 which have doubled their quotas. The speakers were Admiral Ross McIntyre, national administrator of the Red Cross blood donor program; Major Anthony C. McAuliffe, commander of the 101st Airborne Division at Bastogne; Major Gen. Raymond W. Bliss, U. S. Army surgeon-general; and Dr. Elmer L. Henderson, Louisville, President-Elect of the American Medical Association. After the ceremonies an open house was held at the Blood Center and guests were honored at a reception at the home of Mr. Wilson Wyatt, former mayor of Louisville.

LOUISIANA

History of Medicine Awards—Student awards of the History of Medicine Society of Tulane University, New Orleans, were presented at the annual banquet May 12. The I. I. Lemon Award for the best student discussion was presented to Mr. Lewis Post for his paper on Galen. The Rudolph Matas Award for the best paper was given to Mr. Richard Smith for his paper on Abraham Jacob. A personal award by Dr. B. Bernard Weinstein was given to Mr. James Lancaster in appreciation of his paper on Sir William Osler. The guest speaker at the banquet was Dr. Alfonso Alvarez Bravo, professor of gynecology, University of Mexico School of Medicine, Mexico, D. F., who spoke on the history of gynecology in Mexico.

MICHIGAN

Panzner Memorial Clinic Tour—On June 8 the Providence Hospital staff observed the first annual Edward J. Panzner Memorial Clinic Tour, in memory of the late Dr. Panzner, who was senior surgeon at the hospital for many years. The staff plans to go every year to a different medical center as a group.

High School Cancer Education Program—The Genesee County Unit of the American Cancer Society, with the cooperation of the County School Commissioner, the superintendent of the Flint schools, the county medical society and the Flint and county health departments, carried out a cancer education program in the high schools during the present school year. It has been directed at both pupils and science teachers in all public and parochial high schools of the county. During November and December 1949 physicians addressed about 9,000 high school pupils on the subject of cancer. Time was allowed for a question period. A seminar for high school science teachers and school administrators was held in Flint at weekly intervals for five two-hour meetings. Representatives of city and county health departments, the Visiting Nurses Association and other health and welfare organizations attended. A packet of books, journals and pamphlets on cancer for each high school library is being furnished at the Genesee County Unit of the American Society and a manual for use by the teachers is in preparation by the Cancer Control Committee of the state medical society.

NEBRASKA

Dr. Alan Moritz to Receive Honorary Degree—The University of Nebraska College of Medicine, Omaha, will confer the honorary degree of Doctor of Science on Dr. Alan R. Moritz, professor of legal medicine at Harvard University, Boston, from 1937 until 1949 and now professor and director

of the Institute of Pathology at Western Reserve University School of Medicine, Cleveland. Dr. Moritz received his Bachelor of Science degree in 1920, M. A. in 1921 and M. D. in 1923 from the university. He will be cited as follows: "Alan Richards Moritz, Native son of Nebraska, inspiring university professor, prolific author, distinguished leader in legal medicine whose achievements have greatly advanced sound application of medical knowledge to the administration of justice and furtherance of safety and health to the lasting benefits of his fellow citizens, and alumnus whom we honor today."

NEW HAMPSHIRE

Dr. Colby Goes to Portland—Dr. Edward W. Colby, Concord, director of Communicable Disease Control, resigned from the State Health Department May 12 to accept the position of city health officer of Portland, Maine. He has been with the state health department since 1942.

NEW YORK

Blood Vessel Bank—The New York Heart Association and its affiliate, the New York Society for Cardiovascular Surgery, have jointly announced the establishment of a central cooperative blood vessel bank making possible replacement of diseased or abnormal sections of human arteries. It was established last July by a \$15,000 grant from the heart association and is now occupying temporary facilities at New York Hospital, Cornell Medical College. It is soon to be moved to permanent quarters at Bellevue Hospital.

Dr. Hellman to Head Department—Dr. Louis M. Hellman has been appointed as the first full time professor of obstetrics and gynecology at the State University Medical Center at New York City College of Medicine, which was recently reorganized by merger of Long Island College of Medicine with State University of New York. Dr. Hellman received his medical degree in 1934 from Johns Hopkins University School of Medicine, Baltimore, and since 1945 has been associate professor of obstetrics at his alma mater. He will join the faculty of the state university August 1. During the war he served as lieutenant commander in the U. S. Naval Reserve. Dr. Hellman will succeed Dr. Charles A. Gordon as professor and executive officer of the college department and will have his offices at Kings County Hospital, where he will be director of the college division of obstetrics and gynecology.

New York City

Exhibit on Cortisone and ACTH—The New York Academy of Medicine Library has prepared an exhibit of as much of the recent literature as possible concerning cortisone and pituitary adrenocorticotrophic hormone (ACTH). It has prepared a bibliography of this material, which may be secured by physicians on request. The address is 2 East 103rd Street, New York 29.

Museum of Health—The American Museum of Health, on the campus of Hunter College, New York, opened its doors to the public in April. Among the exhibits are the models, Transparent Man, Big Ear, Voice Organ, and the Blood System, which were displayed at the World's Fair in 1938-1939. Said to be the largest of its kind in the world, the museum is sponsored by the New York Academy of Medicine, Columbia and Harvard School of Public Health, Johns Hopkins University and others. Admission is free.

Test for Mental Maturity—The Institute of Psychological Research of Teachers College, Columbia University, has been awarded a grant of \$4,965 by the Coordinating Medical Council for Cerebral Palsy of New York City to complete a standardized test for determining the mental maturity of children with cerebral palsy. Work under the new grant will be directed by Irving D. Lorge, Ph.D. He will be assisted by Dr. Lucille H. Blum, psychologist-consultant at the cerebral palsy Pre-School Center of the Lenox Hill Hospital, and Bessie B. Burgemeister, Ph.D., research psychologist at the Neurological Institute in New York City. The Coordinating Medical Council for Cerebral Palsy of New York City was organized in 1947 to meet the need for coordinated effort in behalf of persons with cerebral palsy.

NORTH CAROLINA

University Appointment—Dr. Arthur J. Patek, Jr., assistant clinical professor of medicine at Columbia University College of Physicians and Surgeons, New York, was appointed professor of medicine at Western Reserve University School of Medicine and director of medicine at Mount Sinai Hospital, Cleveland, effective May 1. After receiving his degree from Harvard Medical School, Boston, in 1930, he served an intern-

ship in medicine at University Hospitals in Cleveland. Establishment of the position of director of medicine on a full time basis at Mount Sinai Hospital is in line with affiliation of the hospital with the school of medicine.

OHIO

Public Health District Offices—The Ohio Department of Health is setting up five district offices to decentralize its consultation services. Offices for the southeast district are at Athens, the northeast district, Cuyahoga Falls, northwest district, Bowling Green, central district, Delaware, and southwest district, to be selected. The ultimate goal of the department is to staff district offices with medical officers, engineering and sanitation consultants, public health nursing consultants, health education consultants, records and administrative consultants or personnel for any other special assistance which might be needed. No direct services will be rendered through district offices. Their functions will be purely that of consulting with local health departments.

State Medical Election—The following officers were elected at the recent annual meeting of the Ohio State Medical Association in Cleveland: Dr. Ernest O. Swartz, Cincinnati, president; Dr. Fred W. Dixon, Cleveland, president-elect; and Dr. Henry P. Worstell, Columbus, treasurer.

Personal—Dr. Maurice Levine, head of the department of psychiatry at the University of Cincinnati College of Medicine, has been elected president of the American Delegation of 30 psychiatrists who will attend the first International Congress of Psychiatry September 18-26 in Paris, France. While at the congress Dr. Levine will give a seminar on the development of American psychiatry in the past 20 years.

OKLAHOMA

University Appointment—Dr. James P. Dewar, Jr., New York, has been appointed assistant professor of pathology at the University of Oklahoma School of Medicine, Oklahoma City, and director of surgical pathology at the University Hospital. Dr. Dewar received his M.D. degree from McGill University Faculty of Medicine, Montreal, in 1939. After service in World War II he became a fellow in pathology at the New York state laboratory and then at Bender Laboratory.

PENNSYLVANIA

Society News—The Montour County Medical Society at Danville presented a postgraduate seminar May 19 at the George F. Geisinger Memorial Hospital and Clinic in Danville. Guest speakers included Dr. Robert Kennedy, clinical professor of surgery, New York, and Drs. Julian Johnson and Harvey Blank, Philadelphia.

Philadelphia

Eliason Memorial Fund—An Eldridge L. Eliason Memorial Fund has been started by the Aid Association of the Philadelphia County Medical Society to memorialize one of Philadelphia's surgeons and to benefit doctors and their families who are in need. All associates, students, friends and patients are invited to contribute. Checks should be made out to Eldridge L. Eliason, M.D., Memorial Fund and mailed to Jesse T. Nicholson, M.D., treasurer, The Aid Association of the Philadelphia County Medical Society, 330 South 9th Street, Philadelphia 7.

History of Medicine Lectureship—Woman's Medical College of Pennsylvania has received a bequest of \$10,000 from the estate of William Edward Mead, to be combined with a bequest of a like amount from the estate of his wife, the late Dr. Kate Campbell Hurd-Mead of Haddam, Conn., "the income to be used toward a lectureship on the history of medicine to be known as the Kate C. Hurd '88 Fund." In addition, Dr. Mead left her library of books and pamphlets on the History of Women in Medicine to the college. Dr. Mead also directed that \$20,886 be given to the Alumnae Association of the Woman's Medical College of Pennsylvania "to be held as the Kate Campbell Hurd '88 Fund. The annual income of this fund is to be expended at the direction of the officers of the association."

Pittsburgh

Appointments at School of Public Health—The Graduate School of Public Health, University of Pittsburgh, has appointed Dr. Francis S. Cheever, Boston, as professor of microbiology, Mr. William H. Ray as research associate in the department of occupational health, and Gladys E. Sather, M. Ph., as research associate in the department of epidemiology and bacteriology. Dr. Cheever received his M.D. degree in 1936 from Harvard Medical School, Boston. He will continue his research in bacteriology, virology and immunology, will assist in teaching epidemiology and will carry the responsibility of organizing and teaching courses in microbiology and

immunology Mr Ray for the past six years has been in the Health Physics Division of Oak Ridge (Tenn.) National Laboratory. Miss Sather received her Master of Public Health degree from the University of California, San Francisco. She came to the School of Public Health from the university, where she was principal technician at the Hooper Foundation.

GENERAL

Sectional Congress of Surgeons—A meeting of sections of the Southeastern Surgical Congress from the District of Columbia, Maryland, Virginia and West Virginia will be held at the Greenbrier, White Sulphur Springs, W. Va., July 13-15. Dr. Carl C. Howard, Glasgow, Ky., president of the Southeastern Surgical Congress, will speak on "Open Reduction of Fractures." Rush D. Holt of Weston, former U. S. Senator from West Virginia, will speak at the banquet Saturday evening on "Table of the Free Lunch." Separate business meetings of the four state sections will be held at noon on July 14.

Traffic Fatalities Decrease in Small Cities—By going through the entire year of 1949 without a single traffic fatality, 504 cities with populations between 5,000 and 10,000 have won places on the Honor Roll of the National Traffic Safety Contest. The National Safety Council, which conducts the contest, announced that this makes an increase of 103 from the number on the 1948 Honor Roll. Hobart Okla., which state records show has never had a traffic death since its incorporation in 1901, maintained its perfect record in 1949. The council does not know of any other city in the population group which equals this record.

Pan American Leprosy Conference—The Third Pan American Conference on Leprosy will be held at Buenos Aires, October 8-14, under the auspices of the Argentine government. Organization plans follow those of the second conference held in Rio de Janeiro in 1946. Governments of the American Republics will be invited to send official delegations and the Pan American Sanitary Bureau, International Leprosy Association, and selected institutions to send accredited representatives. Topics are (1) classification of subtypes, (2) status of leprosy reactions, (3) reversibility of clinical types and the lepromin reaction and (4) social assistance to patients and their families. For information address the Organizing Committee, Ayacucho 1477, Buenos Aires.

Congress on Amebiasis—An international congress on amebiasis and other intestinal parasites is being organized in Chatel Guyon, France. The meeting will take place on September 15-16, 1950. The subject under discussion will be in four sections:

Scientific Section: Pathologic Anatomy of Parasitic Disease in the Adult and the Child.

Medical Section: Clinical Forms of Parasitic Disease in the Adult and the Child.

Therapeutic Section: Chemotherapy, Surgery, etc.

Hygiene Public Health Section: Worldwide distribution and diffusion, part played by displaced persons, social consequences of parasitic infections.

Information may be obtained from Secretariat General Congres International de l'Amebiase, Grands Thermes, Chatel-Guyon (Puy-de-Dome) France.

Urges Improvement in Cancer Statistics—The World Health Organization's Expert Committee on Health Statistics, following a session at Geneva in April, recommended that more detailed and precise statistics on cancer be gathered from all countries as a means of obtaining data for research and other aspects of the fight against cancer. So far, says the committee's report, most investigations of cancer statistics have been based on death certificates, but recent progress in treatment has made that method inadequate for research purposes. More information is needed regarding diagnosis and the prevalence of cancer according to the site of the tumor, as well as recovery and survival rates resulting from different treatment. The committee suggested basic definitions and proposals for evaluation of cancer morbidity among the general population as well as among special population groups according to social, economic and occupational factors. Suggestions were also made regarding adequate statistics on results of cancer treatment on a unified basic nomenclature.

Fellowships to Aid in Training the Handicapped—Eighteen persons working in the field of rehabilitation and employment counseling for the handicapped have been awarded fellowships to a special training course by Alpha Gamma Delta, International Women's Fraternity and the National Society for Crippled Children and Adults. The four-week course, designed to help meet the employment problems of cerebral palsied and other severely handicapped workers, will be given at the Institute of Rehabilitation and Physical Medicine of the New York University-Bellevue Medical Center,

under the auspices of the New York University School of Education May 22-June 16. The New York program is the third such course to be offered under the joint sponsorship of Alpha Gamma Delta and the national society. In the two previous courses 29 persons from 24 states and Canada were trained for counseling and placement work with the handicapped. The fellowship winners, on completion of the course, will return to their places of employment to apply their specialized knowledge and techniques to the counseling and employment problems of the handicapped.

U. S. Contributions to Needy Countries—Nearly \$24,000,000 in money, materials and services was contributed by 118 United States national organizations for educational reconstruction in war-devastated and other needy countries in 1949, according to a report made to the U. S. National Commission for the United Nations Educational, Scientific and Cultural Organization issued April 15. This amount does not include the contributions made by many other national organizations. The reports tabulated generally were from organizations most closely associated with the work of UNESCO. According to George N. Shuster, president of Hunter College and chairman of the Educational Reconstruction Committee, they show that many of the organizations which were most active in supplying food and clothing to war-devastated countries immediately after the end of the war now are concentrating on educational reconstruction and equipment and on scholarships and training facilities. Among the countries receiving major assistance were Greece, more than \$2,000,000; Germany about \$1,500,000; China, about \$2,882,000; and India \$1,125,000. European countries received over \$8,000,000, the Near East, over \$5,000,000, most of which went to Israel. Asia and the Pacific countries, \$5,176,000, and the Latin-American countries about \$350,000.

WHO Committee on Unification of Pharmacopoeias—The World Health Organization's nine member Expert Committee on the Unification of Pharmacopoeias under the chairmanship of Dr. Charles H. Hampshire of London opened a nine-day session April 20 at the U. S. Pharmacopoeial Building in New York. Among subjects discussed were plans for the publication of a new international pharmacopoeia under auspices of the World Health Organization, nonproprietary names of drugs, a table of doses suitable for children, new methods of analysis, control of drugs, regulations on drugs in different countries, advertising and labeling of drugs, the preparation of a questionnaire to be sent to governments for information on the control of drugs and relations with other Expert Committees of the organization in such fields as addiction-producing drugs. The following members, who serve as experts rather than as representatives of governments, are Dr. Hampshire, secretary, British Pharmacopoeia Commission, London (chairman); Prof. H. Baggesgaard-Rasmussen of the Danish School of Pharmacy and member of the Danish Pharmacopoeia Commission, Copenhagen; Prof. E. Fullerton Cook, chairman of the commission of the Revision of Pharmacopoeia of the United States, Philadelphia; Prof. I. R. Fahmy of Fouad University, Cairo, Egypt; Prof. H. Flueck, member of the Swiss Pharmacopoeia Commission, Zurich; Prof. R. Hazard of the University of Paris and member of the Commission of the French Pharmacopoeia; Prof. van Os of the University of Groningen, Netherlands, and chairman of the Netherlands Pharmacopoeia Commission; G. A. Morrell, Ph.D., director, Food and Drugs Division, Department of Health and Welfare, Ottawa, Canada; and Dr. Mayoral Pardo, professor at the Escuela Militar de Medicina, Mexico D. F.

Life Insurance Awards for Research on Heart Disease—The life insurance companies of the United States and Canada will give \$670,000 to medical schools and other research centers during 1950 for the study of heart disease and the training of research scientists. The awards were approved May 12 at the annual meeting of the Life Insurance Medical Research Fund and bring to \$3,200,000 the total amount of money given out by the fund since it was organized late in 1945. Recipient of the Lasker Award from the American Public Health Association last year for its contributions to the advancement of medical science and public health, the Life Insurance Medical Research Fund is now being supported by 147 life insurance companies. Included in the awards approved by the fund's Board of Directors is \$548,000 to be used as grants-in-aid for research programs, and an additional \$122,000 which will go to 34 research fellows. The larger sum of \$548,000 will be granted to 36 medical schools and other research centers and will support 51 different research programs. The value of the individual grants-in-aid range from several thousand dollars to \$21,000. New members of the Advisory Council are Wallace O. Fenn, Ph.D. of the University of Rochester, N. Y.; Dr. Thomas

Francis Jr of the University of Michigan School of Public Health, Ann Arbor, and Dr Oliver H Lowry of Washington University School of Medicine, St. Louis. Dr Cyril N H Long of Yale University School of Medicine, New Haven, Conn., was chosen as chairman of the council for the coming year. The new medical directors' representative is Dr Earl C Bonnett of the Metropolitan Life Insurance Company, New York. The council serves with Dr Francis R Dieuaide, scientific director of the fund, and with the medical directors' representatives as professional advisors to the fund's board. The new member of the Board of Directors is Claris Adams, president of the Ohio State Life Insurance Company, Columbus. Leroy A Lincoln, president of the Metropolitan Life Insurance Company, New York, and Mr M Albert Linton, present chairman, were reelected to the board.

Committee on Problems of Alcohol—This committee has been set up in the Division of Medical Sciences of the National Research Council on the request from the Research Council on Problems of Alcohol, which voted to disband in 1949 and asked the National Research Council to assume direction of its research program. The council is an operating agency of the National Academy of Sciences and is a private organization providing on request research correlation, advisory and administrative services. More than 4,000 academic and industrial scientists serve the council without pay. The Committee on Problems of Alcohol will initiate and support scientific research concerned with the action of alcohol in human beings and thus hopes to discover means of avoiding or correcting the pathologic effect of this chemical on persons who are vulnerable. There are many public and private agencies conducting research, treatment and educational programs on problems of alcohol. On the request of these agencies, the Committee on Alcohol is prepared to enter into contracts to (1) review and advise on research projects in this field, (2) offer consultative services to those developing or revising statutes, promoting treatment or rehabilitation programs, or to those interested in establishing uniform recording procedures, and (3) organize and conduct interagency conferences.

The committee is not organized to provide public information or education in this field, but it is prepared to offer technical advice to responsible persons and agencies for the dissemination of information. Information on the work of this committee, including methods of submitting proposals for grants in support of research on problems of alcohol, may be obtained from the Secretary, Committee on Problems of Alcohol, Division of Medical Sciences, National Research Council, 2101 Constitution Avenue, N W, Washington 25, D C. Present members of the committee are Chauncey D Leake, Ph D, Galveston, Texas, chairman, Frank Brink Jr, Ph D, Baltimore, Dr Anton J Carlson, Chicago, Dr Oskar Diethelm, New York, Mr Lawrence K Frank, New York, Dr Lawrence C Kolb, Rochester, Minn, Curt P Richter, Ph D, Baltimore, Mr Ellis B Slater, president, Frankfort Distillers Corporation, Dr Isaac Starr, Philadelphia, Dr George S Stevenson, New York, Col Frank B Thompson, chairman of the board, Glenmore Distilleries Company, Wilfred W Westerfield, Ph D, Syracuse, N Y, Roger J Williams, D Sc, Galveston, Texas, and Joseph Hirsh, executive secretary, New York.

LATIN AMERICA

Study Spread of Cholera via Pilgrimages—The Program Committee of the World Health Assembly May 15 appointed a working party at the request of Egypt to examine the danger of cholera spreading from endemic areas via Mecca pilgrimages into the East Mediterranean. Egypt, France, Pakistan, India, Italy, United Kingdom and Saudi Arabia comprise the working party to study the Egyptian document which points out that the pilgrimage season for the next 17 years coincides with the danger period in Egypt, from May to October. The document asserts that the present quarantine requirements are insufficient or neglected, especially by air travel.

New Periodical—The first issue of the new periodical *Revista Colombiana de Obstetricia y Ginecología*, organ of the Colombian Society of Obstetrics and Gynecology, under the chairmanship of R Ramirez Merchan, appeared in January 1950. Headquarters are at Carrera 5 no 14-46 Bogota, Colombia. The 48 pages include an introductory editorial and the following original articles: "Some Aspects of Cardiopathies and Mechanism of Circulation During Pregnancy" by Dr G Lopez Escobar, "Ovulatory Pain" by Dr H Amaya-Leon, "Asphyxia Neonatorum" by Dr H Gomez Herrera, "Spontaneous Hysterectomy" by Dr C R Silva Mojca, "Eclampsia and Retina" by Dr A Tribin Piedrahita and "Behavior in Premature Detachment of Normally Inserted Placenta" by Dr J Corral Maldonado.

Medical Week on Gastroenterology—The Second Pan-American Medical Week on Gastroenterology will be held at Rio de Janeiro and São Paulo, Brazil, July 23-29 under the auspices of the Inter American Association of Gastroenterology. Drs B Montenegro and A da Silva Mello are president and vice president, respectively, of the executive committee and members of the organizing committee. Official topics are: (1) Physiopathology of the Small Intestine: H Bockus, U S A, D Gutierrez Arrese, Spain, (2) Nonspecific Enteropathies: C Jimenez Dias, Spain, Silva Melo G Siffert, N Maruy F J Pontes, Brazil, Drs Burrill B Crohn, John H Garlock, both of New York, U S A, (3) Tuberculous Enteritis: C Bonorino Udaondo, N Stapler, C Nuñez, D'Alotto, Argentina, J Ramos and F Cintra do Prado, Brazil, (4) Radiology of the Small Intestine: L Zubiaurre, J Carrere, C A Estape, Uruguay, P Maissa, Argentina, A Ferreira, Brazil, (5) Functional Disturbances of the Small Intestine After Intestinal Resection: A Ayala Gonzalez, Mexico, E Bastos, Brazil, (6) Occlusion of the Small Intestine: D Prat, Uruguay, A Paulino Jr, Brazil, and (7) Diverticula of the Small Intestine: A Cegallo, Centeno, Argentina. Further information may be obtained from the general secretary, Dr J F Pontes, Rua 7 de April, 176, 1° andar, São Paulo, Brazil.

Brazilian Society of Orthopedic Surgery—The ninth annual convention of the Sociedade Brasileira de Ortopedia e Traumatologia will be held at the Hospital Santa Cruz, São Paulo, Brazil, August 22-25. The following official reports will be made:

M Lazareschi, São Paulo and M Weinberger, Rio: Treatment of the Fractures of the Shaft of the Femur.
Prof D Chaves, Rio and E Navajas Santos: Osteotomies.

Several other papers will be presented. For the first time there will be scientific and technical exhibits. Guests of honor are Drs H W Meyerding, Mayo Clinic, Rochester, Minn, J Valls and C Ottolenghi, Buenos Aires, and J L Bado from Montevideo. Besides the scientific sections there will be clinical demonstrations in the orthopedic clinic of the Hospital das Clinicas da Universidade de São Paulo, directed by Prof Godoy Moreira, and in the orthopedic clinic of the Santa Casa directed by Prof D Define. The president of the society and congress is Dr Renato Bomfim.

FOREIGN

South Africa Clinical Journal—The *South African Journal of Clinical Science* is the new quarterly publication of the Cape Town Post-Graduate Medical Association, the South African Institute for Medical Research and the Medical Association of South Africa. The new journal embodies the former *Clinical Proceedings*. The subscription price is £1 5s. It should be sent to Medical House, 35 Wale Street, P O Box 643, Cape Town, South Africa.

WHO Medical Training Centers in Europe—Agreements have been signed by the World Health Organization with Czechoslovakia, Denmark and Poland establishing in those three countries medical training centers where courses will be given on an international basis. In Copenhagen a training center in anesthesiology will be set up for northern European physicians. Iceland and Sweden have indicated they will participate. A similar center in anesthesiology will be opened at Prague for WHO fellows from neighboring countries. Both centers were scheduled to open in May. Two agreements were signed by WHO and Poland for a training center in biochemistry at Wrocław and a training center in venereal disease control at Warsaw. WHO aid to the centers will include cooperation with national health administrations and medical faculties in setting up the curriculum of the schools, subsidizing students, providing scientists and lectures and supplying essential equipment.

Marriages

MURRAY ALAN GROSSMAN, Syracuse, N Y, to Miss Sally Yvonne Weisburgh in New Rochelle, May 14.

LOUIS ARTHUR FARCHIONE, Waterloo, N Y, to Miss Lucille F Lauferswiler of Monticello, April 15.

LAURANCE KNIGHT GROVES, Cleveland, to Miss Mary Louise Carlisle of Garrettsville, April 1.

JOHN J SCOTT, Freeport, N Y, to Miss Marie A Dillard of Allentown, Pa, April 15.

HAROLD M SFSEN to Miss Virtue Palmer Roberts, both of Lynn, Mass, March 31.

ROBERT L CLARK, Flint, Mich, to Miss Jane Snow Wallace of Saginaw, April 15.

DEATHS

Barrow, William Hulbert, Captain, U S Army, retired, San Diego Calif, born in Baltimore May 18 1886, Harvard Medical School, Boston 1916, member of the American Medical Association, entered the medical corps of the regular U S Army in February 1918, during World War I served with the American Expeditionary Forces, retired Jan 7, 1921, for disability in line of duty formerly lecturer in medicine at the University of Southern California School of Medicine and professor of clinical medicine at Stanford University School of Medicine where for many years he was medical adviser, medical supervisor and athletic adviser, Middlesex School in Concord, Mass, 1921-1922, past president of the Southern California Medical Association, fellow of the American College of Physicians, member of the American Heart Association, specialist certified by the American Board of Internal Medicine, affiliated with the Scripps Memorial Hospital in La Jolla and the Mercy Hospital, where he died April 12, aged 63, of coronary heart disease.

Richards, George Gill * Salt Lake City, born in Mendon, Utah, Sept 5, 1883, University and Bellevue Hospital Medical College, New York, 1906, specialist certified by the American Board of Internal Medicine and a member of the board from 1936 to 1946 associate clinical professor of medicine at the University of Utah School of Medicine fellow of the American College of Physicians, of which he had been second vice president, regent and member of the board of governors, served as captain in the medical corps of the U S Army Reserve from 1918 to 1934, during World War II medical adviser for the Utah Selective Service chairman of the Section on Practice of Medicine American Medical Association 1931-1932, for many years affiliated with Dr W H Groves Latter Day Saints Hospital, one of the founders of the Salt Lake Clinic died in Massachusetts General Hospital in Boston April 19, aged 66, of coronary thrombosis

Andries, Joseph H, Detroit, born in Milwaukee, April 7, 1874 Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia 1897 emeritus professor of surgery at the Wayne University College of Medicine, where for many years he was associate professor of clinical surgery member and past president of the Tri-State Medical Association and the Academy of Surgery of Detroit for many years a member of the board of trustees of the Wayne County Medical Society, served on the staffs of St. Joseph's Mercy, St Mary's and Providence hospitals at one time nominated for the Detroit Medical Hall of Fame, died April 15, aged 76, of cirrhosis of the liver

Buchanan, James Arthur * Brooklyn, born in Oxford, Pa., Sept. 7 1887 University of Pennsylvania School of Medicine Philadelphia, 1915, fellow of the American College of Physicians, served with the American Expeditionary Forces during World War I, in April 1919 entered the Mayo Foundation at Rochester Minn, as a fellow in medicine and left April 30, 1922, became an internist at the Pueblo Clinic in Pueblo, Colo served on the faculty of Long Island College Hospital and as attending physician at Wyckoff Heights and Coney Island hospitals died April 17, aged 62

Beam, Watson W, Rolfe, Iowa State University of Iowa College of Medicine, Iowa City, 1886, member of the American Medical Association and the American Association of Railway Surgeons, past president of the Pocahontas County Medical Society, formerly councilor for the eleventh district of the state medical society, for many years a member and at one time president of the school board, formerly director of the First National Bank, died in the Lutheran Hospital Fort Dodge, April 11, aged 91, of pneumonia and chronic myocarditis

Adams, Ralph Crowe, Bird Island, Minn, Jefferson Medical College of Philadelphia, 1906, member of the American Medical Association, died April 25, aged 71, of arteriosclerotic heart disease

Ahlborn, Maurice Bertram * Wilkes-Barre Pa University of Pennsylvania Department of Medicine Philadelphia, 1898, fellow of the American College of Surgeons, for many years affiliated with the Wilkes-Barre General Hospital, died April 9 aged 73

Beaton, Lindsay Alexander, Kenilworth Ill, Rush Medical College, Chicago, 1905, died in Janesville, Wis, May 13, aged 70

Board, Milton, Louisville, Ky, University of Louisville Medical Department, 1893, member of the American Medical Association and its House of Delegates in 1914 1915 and 1916, served during World War I, from 1900 to 1904 member of the state board of charities and correction died in Good Samaritan Hospital March 29, aged 79 of acute myocarditis

Boehringer, Herman Winfield, Havertown Pa, Temple University School of Medicine, Philadelphia, 1910 formerly on the faculty of his alma mater, died April 17, aged 72, of cerebral hemorrhage.

Bogard, R C, Hensley, Ark (licensed in Arkansas in 1903), died April 16, aged 80, of pneumonia

Bond, John Harvey * Fargo, N D, University of Pennsylvania School of Medicine, Philadelphia, 1936, died in April, aged 39

Bossard, Harry Bardwell * Phillipsburg, N J, Jefferson Medical College of Philadelphia, 1901, past president and treasurer of the Warren County Medical Society, a medical examiner for schools in Hopatcong and Harmony townships, affiliated with Warren Hospital, died in April, aged 72, of cardiac infarction

Boyer, Robert * Philadelphia Medico Chirurgical College of Philadelphia, 1898 fellow of the American College of Surgeons, member of the American Urological Association, affiliated with Nazareth Hospital, died in Abington (Pa.) Memorial Hospital April 15, aged 73, of heart disease.

Boyle, Hugh Cotter, Philadelphia, Temple University School of Medicine, Philadelphia 1914, served overseas with the British Army during World War I, member of the surgical staff of Sacred Heart Hospital and was attached to the auxiliary staff of Allentown Hospital, club physician for the Philadelphia "Phillies" baseball team of the National League from 1936 to 1942, died in Misericordia Hospital, Philadelphia, March 20, aged 62

Brinson, William David, Baldwin, Fla, Vanderbilt University College of Medicine, Nashville Tenn, 1913, member of the American Medical Association, died April 15, aged 69, of heart disease.

Brown, Edwin, Philadelphia, Jefferson Medical College of Philadelphia, 1886, died in the Abington (Pa.) Memorial Hospital April 10, aged 87

Brubaker, Elber Robert * Mesa, Ariz, Medical College of Ohio Cincinnati, 1908, member of the Ohio State Medical Association and the Radiological Society of North America, at one time practiced in Springfield, Ohio, where he was affiliated with City Hospital, served during World War I, medical recruiting officer for the Navy in the Cincinnati district with the rank of lieutenant commander during World War II, died in the Southside District Hospital April 4, aged 65

Bruorton, Oscar Lucas, Georgetown, S C, Medical College of the State of South Carolina, Charleston 1912, past president of the Georgetown County Medical Society, served during World War I, died in Cairo Ill, March 26, aged 64, of coronary occlusion

Burgher, Arthur Ernest, St. Joseph Mo, Keokuk (Iowa) Medical College College of Physicians and Surgeons, 1902, member of the American Medical Association past president of the Buchanan County Medical Society, affiliated with Missouri Methodist and St Joseph's hospitals, died April 2, aged 73, of carcinoma

Cade, Charles Craig * San Antonio, Texas University of Texas School of Medicine, Galveston 1909 fellow of the American College of Surgeons served during World War I, member of the staffs of the Robert B Green Memorial, Santa Rosa and Nix Memorial hospitals died April 11, aged 63

Caldwell, Joseph Davis, North Adams Mass College of Physicians and Surgeons Boston 1906 affiliated with North Adams Hospital died May 2, aged 67, of coronary thrombosis

Carter, Paul Conway, Madison N C University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore, 1916 past president of the Rockingham County Medical Society member of the American Medical Association served during World War II and in France during World War I member of the school board died in the Veterans Administration Hospital, Richmond, March 27, aged 60, of hepatitis

Casteel, Lewis Ryley, Metasville, Ga., Vanderbilt University School of Medicine, Nashville, Tenn., 1893, member of the American Medical Association, died March 26, aged 81

Cleveland, Joseph Dewey, Memphis, Tenn., Northwestern University Medical School, Chicago, 1926, member of the American Medical Association and the Southeastern Surgical Congress, affiliated with the Baptist Memorial Hospital, where he died April 12, aged 51, of heart disease

Cole, Charles F., Prattsville, Ark. (licensed in Arkansas in 1903), member of the American Medical Association, at one time justice of the peace, died in Malvern April 21, aged 81, of myocarditis

Crouch, J. Frank, Baltimore, University of Maryland School of Medicine, Baltimore, 1890, member of the American Medical Association, professor emeritus of clinical ophthalmology and otology at his alma mater, formerly on the staffs of the Presbyterian Eye, Ear and Throat Charity Hospital and the Baltimore Eye, Ear and Throat Charity Hospital, died April 20, aged 84

Cummings, Robert Newton, Emmett, Idaho, Denver and Gross College of Medicine, 1903, died April 12, aged 75, of coronary thrombosis

Da Costa, A. Antonio ☉ San Diego, Calif., Howard University College of Medicine, Washington, D. C., 1931, was found murdered in his home April 16, aged 47

Dobyns, Gypsie Junius ☉ San Francisco, Northwestern University Medical School, Chicago, 1934, served during World War II, affiliated with the Veterans Administration, died April 7, aged 47

Edwards, Edward Emlin ☉ Taylor, Pa., University of the South Medical Department, Sewanee, Tenn., 1908, University of Louisville (Ky.) School of Medicine, 1909, school physician, served on the staff of Moses Taylor Hospital, Scranton, died April 15, aged 66, of carcinoma of the stomach

Emmerson, William Stanford, Waconia, Minn., University of Minnesota College of Medicine and Surgery, Minneapolis, 1904, died April 19, aged 72, of cerebral hemorrhage

Enzor, Roscoe Hinson, Smithville, Ga., Atlanta School of Medicine, 1911, member of the American Medical Association, served as mayor, county health officer and a director of the Farmers and Merchants Bank, died April 12, aged 61

Epperson, Egbert Ernest, Meadowview, Va., University College of Medicine, Richmond, 1905, member of the American Medical Association, died in the George Ben Johnston Memorial Hospital, Abingdon, April 1, aged 71

Fenske, Hugo Oscar ☉ Chicago, Loyola University School of Medicine, Chicago, 1942, affiliated with Grant Hospital, where he died March 26, aged 39

Fitzgerald, Guy Harland ☉ Tucson, Ariz., University of Wooster Medical Department, Cleveland, 1898, fellow of the American College of Surgeons, died April 24, aged 76, of cerebral embolism

Foulon, Irenaeus Lister ☉ East St. Louis, Ill., Washington University School of Medicine, St. Louis, 1915, served during World War I, member of the board of directors and executive committee of St. Clair County Tuberculosis Association, of which he had been president for many years, member of the board of directors of East St. Louis First National Bank, died in St. Mary's Hospital April 15, aged 61, of heart disease

Frank, William L., Pottstown, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1897, on the staff of the Pottstown Memorial Hospital, where he died March 28, aged 74

Garner, Albert Rowland ☉ Norristown, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1902, past president of the Montgomery County Medical Society, affiliated with Montgomery Hospital, chairman of the Public Assistance Committee, died May 7, aged 73

Givens, Emory Marion, McComb, Miss., College of Physicians and Surgeons, Memphis, Tenn., 1908, member of the American Medical Association, died April 2, aged 70

Gosian, Moses, Brockton, Mass., Tufts College Medical School, Boston, 1919, member of the American Medical Association, died March 10, aged 63, of coronary occlusion

Green, Frank Bernard, Chicago, University of Illinois College of Medicine, Chicago, 1935, died April 30, aged 40, of coronary occlusion

Griffin, Robert Bailey, Ripley, Tenn., Vanderbilt University School of Medicine, Nashville, 1898, member of the American Medical Association, health officer of Lauderdale County, died April 12, aged 73, of coronary occlusion

Guess, James Edward, Okmulgee, Okla., Meharry Medical College, Nashville, Tenn., 1902, formerly postmaster at Clarksville, affiliated with City Hospital, died March 5, aged 77, of carcinoma of the liver

Hagyard, Charlton Edward ☉ Seattle, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, an Associate Fellow of the American Medical Association, died April 8, aged 72

Hall, Neal, Amarillo, Texas, University of Texas School of Medicine, Galveston, 1923, member of the American Medical Association, died in St. Anthony's Hospital February 19, aged 56, of ventricular fibrillation

Harned, Henry S. ☉ Boston, Ky., Hospital College of Medicine, Louisville, 1901, died March 11, aged 71, of coronary thrombosis

Hastings, Kent Kane, Rocky River, Ohio, University of Wooster Medical Department, Cleveland, 1896, died March 31, aged 79

Havely, John Minor, Torrington, Wyo., American Medical College, St. Louis, 1896, died April 26, aged 81, of heart disease

Heinze, Charles Frederick, St. Paul, University of Minnesota College of Medicine and Surgery, Minneapolis, 1896, died in St. Peter (Minn.) State Hospital April 23, aged 78, of arteriosclerosis and diabetes mellitus

Heitman, Jefferson Henry, Tioga, Ill., Barnes Medical College, St. Louis, 1899, died March 28, aged 76, of coronary thrombosis

Hines, Frank Brown, Chestertown, Md., College of Physicians and Surgeons, Baltimore, 1904, member and past president of the Medical and Surgical Faculty of Maryland, deputy medical examiner for Kent County, served during World War I and for many years in the National Guard, chairman of the county draft board, surgeon for the local branch of the Pennsylvania Railroad, chief of staff of the Kent and Upper Queen Anne's General Hospital, where he died March 28, aged 68, of carcinoma of the right lung

Holcombe, Luman Clayton ☉ Milton, Vt., University of Vermont College of Medicine, Burlington, 1894, an Associate Fellow of the American Medical Association, for many years health officer of the town of Milton, died March 27, aged 84, of intestinal obstruction

Hutchins, Wiley Paremore, Hot Springs National Park, Ark., University of Arkansas School of Medicine, Little Rock, 1912, died March 30, aged 73, of carcinoma of the prostate

Kelleam, Edwin Ayres, Wright City, Okla., University of Louisville (Ky.) Medical Department, 1907, member of the American Medical Association, for many years associated with the Indian Service, died in Edmond March 28, aged 68, of heart disease

Kilpatrick, Lewis Alexander ☉ Gadsden, Ala., Birmingham Medical College, 1909, died March 24, aged 64, of carcinoma

Lamb, Harvey Densmore ☉ St. Louis, Washington University School of Medicine, St. Louis, 1910, assistant professor of ophthalmology at St. Louis University School of Medicine, at one time on the faculty of his alma mater, specialist certified by the American Board of Ophthalmology, served on the staffs of St. Mary's Group of Hospitals, Missouri Pacific Hospital and Barnes Hospital, died in Jewish Hospital April 6, aged 66, of edema of the lung

Larsson, Johan Gustave, Boston, Long Island College Hospital, Brooklyn, 1907, died March 12, aged 72, of arteriosclerotic heart disease

Linn, Harry Preston ☉ Paducah, Ky., University of Nashville (Tenn.) Medical Department, 1909, medical officer in charge of the U. S. Public Health Service in Paducah, affiliated with Riverside and Illinois Central hospitals, died April 9, aged 64, of myocardial infarct

Lucas, George Maurice, Jacksonville, Ill., Northwestern University Medical School, Chicago, 1920, fellow of the American College of Surgeons, on the staff of the Jacksonville State Hospital, died April 1, aged 55, of acute cardiac dilatation

Ludeau, Jules Ernest, Houston, Texas, Kentucky School of Medicine, Louisville, 1892, died in Heights Hospital March 30, aged 79

McCarty, Elba Denton ☉ Tacoma, Wash., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903, specialist certified by the American Board of Radiology, member of the American Roentgen Ray Society, affiliated with Pierce County Hospital and Tacoma General Hospital, where he died February 27, aged 72, of hemorrhagic pancreatitis

McCord, Frank Everett, Jacksonville, Ill., Gross Medical College, Denver, 1898, member of the American Medical Association, county health officer, died in the Passavant Memorial Hospital April 11, aged 72, of duodenal ulcer.

McGuire, James Anthony, Denver, Creighton University School of Medicine, Omaha, 1940, member of the American Medical Association, certified by the National Board of Medical Examiners, specialist certified by the American Board of Dermatology and Syphilology, served during World War II, assistant in dermatology and syphilology at the University of Colorado School of Medicine, affiliated with Mercy, St. Anthony's, St. Joseph's and Denver General hospitals, died April 22, aged 34.

McIntosh, William Page, Buffalo, W. Va., University of Pennsylvania School of Medicine, Philadelphia, 1910, died in the Soldiers' Home Hospital, Chelsea, Mass., recently, aged 62, of cerebral hemorrhage and hypertensive arteriosclerotic heart disease.

McKee, John Sasser, Raleigh, N. C., University of Maryland School of Medicine, Baltimore, 1907, served during World War I, for many years city physician affiliated with Rex and St. Agnes hospitals, died in Morgantown April 22, aged 72, of coronary occlusion.

McManus, Matthew Patrick, Bayside, N. Y., Long Island College of Medicine, Brooklyn, 1934, member of the American Medical Association, served during World War II, affiliated with Flushing (N. Y.) Hospital and Dispensary, died in México D. F., April 18, aged 43, of coronary occlusion.

McVay, Frederick Roy, Botkins, Ohio, Medical College of Ohio, Cincinnati, 1909, died suddenly in Clearwater, Fla., March 25, aged 67.

Marlette, George Clark, New Orleans, University of Alabama School of Medicine, 1916, member of the Medical Association of the State of Alabama, served during World War I, associated with the Veterans Administration, died in the U. S. Marine Hospital in Mobile, Ala., April 14, aged 62, of congestive heart failure.

Martin, John Russell, Chattanooga, Tenn., University of Tennessee College of Medicine, Memphis, 1931, medical director and owner of the Woman's Clinic Hospital, where he died April 13, aged 43, of cardiorenal failure.

Mattison, Edward Rochelle, Atlanta, Ga., Meharry Medical College, Nashville, Tenn., 1913, died recently, aged 61, of myocarditis, chronic nephritis and hypertension.

Mayberry, Irwin William, Scottown, Ohio, Ohio Miami Medical College of the University of Cincinnati, 1911, served during World War I, died April 21, aged 63.

Meacham, Cowan Cameron, Los Vegas, Nev., Vanderbilt University School of Medicine, Nashville, Tenn., 1892, affiliated with the Las Vegas State Hospital, where he died April 3, aged 82.

Meier, Duane Alva, Houston, Texas, University of Nebraska College of Medicine, Omaha, 1942, served during World War II, through anonymous donations the Duane A. Meier Bone Bank was made possible in his memory and established in the Hermann Hospital of the Texas Medical Center, died April 10, aged 32, of cerebral hemorrhage.

Meyer, Albert Joseph, Thibodaux, La., Medical Department of Tulane University of Louisiana, New Orleans, 1886, past president of Lafourche Parish Medical Society, for many years coroner for Lafourche Parish, died April 5, aged 89.

Nielson, Moses Marion, Los Angeles, Northwestern University Medical School, Chicago, 1911, for many years practiced in Salt Lake City, serving as president of the Salt Lake County Medical Society and on the staff of Holy Cross Hospital, died April 8, aged 65, of coronary occlusion.

Noble, Thomas Benjamin Sr., Indianapolis, Miami Medical College, Cincinnati, 1893, Medical College of Indiana, Indianapolis, 1894, an Associate Fellow of the American Medical Association, fellow of the International College of Surgeons, served on the staff of Indianapolis City Hospital, died in St. Vincent's Hospital April 12, aged 82, of cerebral hemorrhage and arteriosclerosis.

Older, Benjamin, Union City, N. J., College of Physicians and Surgeons, Boston, 1906, member of the American Medical Association, died in St. Anthony's Hospital, St. Petersburg, Fla., April 19, aged 66, of myocardial infarction.

Prather, Roy William, Excelsior Springs, Mo., University Medical College of Kansas City, 1909, member of the American Medical Association, served during World War I, for many years county coroner, affiliated with the Excelsior Springs Sanitarium and Hospital, died April 12, aged 68, of diabetes mellitus.

Reed, Jared A., Newark, N. Y., New York Homeopathic Medical College, New York, 1884, member of the American Medical Association, served as a member, president and secretary of the board of education, died March 27, aged 91.

Reid, Peter, Spokane, Wash., University of Toronto Faculty of Medicine, Toronto, Canada, 1907, served overseas in the medical corps of the Royal Canadian Army during World War I, affiliated with the Deaconess, St. Luke's and Sacred Heart hospitals, died April 15, aged 69, of cerebral hemorrhage.

Rose, Julius Townsend, Healdsburg, Calif., Columbia University College of Physicians and Surgeons, New York, 1904, died in Santa Rosa recently, aged 80, of cardiorenal vascular disease.

Schmid, Cornelius Adrian, Brooklyn, Long Island College Hospital, Brooklyn, 1912, member of the American Medical Association, affiliated with St. Peter's Hospital, where he died April 17, aged 61.

Schnauffer, William Jr., Frederick, Md., Medical College of Virginia, Richmond, 1933, affiliated with the Frederick Memorial Hospital, died in the Johns Hopkins Hospital, Baltimore, April 8, aged 46, of thrombosis of a spinal artery.

Sether, Alvin Fernando, Eugene, Ore., Rush Medical College, Chicago, 1904, fellow of the International College of Surgeons and the American College of Surgeons, on the staff of the Sacred Heart Hospital, died March 3, aged 68, of angina pectoris and arteriosclerosis.

Smith, Lindsey Gillespie, Mesquite, Texas, University of Louisville (Ky.), Medical Department, 1899, died April 11, aged 78.

Steinhart, Lewis Phillip, Atlantic City, N. J., University of Pennsylvania Department of Medicine, Philadelphia, 1900, served during World War I, died in Elkins Park, Pa., March 30, aged 72, of carcinoma of the lung.

Stofer, Michael Webster, Norwich, N. Y., Medico-Chirurgical College of Philadelphia, 1910, member of the American Medical Association, served during World War I, died in Phoenix, Ariz., April 17, aged 62, of carcinoma.

Struthers, Clayton Pryor, Riegelsville, Pa., Medico-Chirurgical College of Philadelphia, 1916, for many years on the board of health of Wilson borough and affiliated with the Easton (Pa.) Hospital, died April 17, aged 58, of carcinoma of the rectum.

Tatum, P. A., Columbus, Ga., Atlanta College of Physicians and Surgeons, 1905, member of the American Medical Association, affiliated with City Hospital, where he died April 2, aged 67.

Troy, Anderson L., West Milton, Ohio, Miami Medical College, Cincinnati, 1904, died March 20, aged 77.

Turner, Charles Alexander, Dyersburg, Tenn., University of Louisville (Ky.), Medical Department, 1894, member of the American Medical Association, affiliated with Baird-Brewer General Hospital, where he died April 22, aged 81, of broncho-pneumonia and aortic regurgitation.

Washburn, Harry Augustus, Waldron, Ind., Medical College of Indiana, Indianapolis, 1897, at one time county coroner, died April 24, aged 76, of chronic valvular heart disease and chronic bronchitis.

Weintraub, Harry, Hopewell Junction, N. Y., University and Bellevue Hospital Medical College, New York, 1923, specialist certified by the American Board of Otolaryngology, member of the American Medical Association, past president of the Clinical Society and Alumni Society and on the staff of the Bronx Hospital, where he died April 17, aged 51, of uremia.

Weitzen, Max, New York, Long Island College Hospital, Brooklyn, 1910, member of the American Medical Association, affiliated with the Beth Israel Hospital, where he died February 26, aged 70, of heart disease.

Wilkinson, George Henry, Moorestown, N. J., Medico-Chirurgical College of Philadelphia, 1896, also a graduate in pharmacy, formerly township physician and health officer, died April 23, aged 92, of arteriosclerotic heart disease.

Windholz, Frank S., San Francisco, Karl-Franzens-Universität Medizinische Fakultät, Graz, Austria, 1922, assistant clinical professor of radiology at the Stanford University School of Medicine, specialist certified by the American Board of Radiology, affiliated with Stanford University hospitals, died April 29, aged 53.

Wrinkle, George Scott, Santa Cruz, Calif., Cooper Medical College, San Francisco, 1909, for many years affiliated with Mendocino State Hospital in Talmage, died April 19, aged 67, of carcinoma of the tongue and throat.

FOREIGN LETTERS

TURKEY

(From a Regular Correspondent)

ANKARA, May 4, 1950

Streptomycin Therapy in Tuberculous Meningitis

Ord Prof Ihsan Hilmi Alantar and Dr Sezai Bedreddin Tumay of the Istanbul University Children's Hospital have published the results of three years of streptomycin therapy in tuberculous meningitis. During the last two years the supply of streptomycin has become more plentiful. Since a license for its importation is no longer required and since it is now duty and tax exempt and less expensive, 1 Gm. selling for 180 to 200 kurus (e.g., 60 cents), more patients can afford it. Unlike all other medicaments, streptomycin is not provided by the hospitals.

Of the 84 patients, 44 were boys and 40 were girls, 3 patients were under 1 year of age, 20 were 2, 11 were 3, 6 were 4, 2 were 5, 9 were 6, 7 were 7, 6 were 8, 6 were 9, 5 were 10, 3 were 11, and 6 were 12 years of age. Eleven patients, 13 per cent, were in the advanced stage of the disease with advanced granulation, in 3 patients the disease was accompanied with tuberculosis of the vertebra (Pott's disease) and in 1 patient with spinal ventosa. Sixty patients, 71.4 per cent, were in coma and 11, 15.3 per cent, were in the precoma stage on admission. Sixteen patients were unable to obtain streptomycin, 50 patients received the drug for a short course of treatments, 15 patients received 1 Gm daily for a course of treatment, and 3 patients were treated a long time with small doses. The 16 patients admitted in coma and unable to obtain streptomycin died within a week without regaining consciousness. Most of the 50 patients receiving the short treatment, with 15 to 20 Gm, were given a daily dose of 1 Gm of streptomycin. Intramuscular and intraspinal routes were used, the daily dose given intraspinally was 0.15 Gm, and after 10 to 15 days improvement was visible. If after an interval of 10 to 15 days treatment was not resumed, the patient's condition deteriorated, the patient becoming deeply comatose. In patients admitted in the late stage of the disease the lesions in the meninges and the brain caused spastic paralysis, with a resultant unfavorable prognosis. Though several patients received 120,000 to 150,000 units of streptomycin per kilogram of body weight, it had no effect and the outcome was fatal. Patients receiving the short treatment improved in the beginning, but the results were unsatisfactory, the organisms' acquiring resistance during the interval with resultant relapses and complications. The first course of short treatment was therefore prolonged from 20 to 30 days and then gradually to 50 and 60 days. The result was checked during a 15 to 30 day interval after the two month treatment. To prevent the organisms acquiring resistance, the interval was not prolonged. There were no untoward results in several patients with streptomycin sensitivity whose second course of treatment was as long as the first. In these cases the daily dose was less, the interval between the intraspinal injections was prolonged and after the second course there was another interval of 15 to 30 days. The authors' experience has shown that the length of time required for the treatment of tuberculous meningitis is individually determined. Though patients have been given more than the 150 Gm of streptomycin considered sufficient for the treatment of children, it did not always have the desired effect and relapses occurred, while in children who were given less than 100 Gm the results were satisfactory. The treatment was therefore based on the condition of the patient, the extent of the lesions and the degree of tolerance. During the intervals the patient's condition was checked by means of a lumbar puncture, when the cell count was unsatisfactory the patient was given another course of one to two months' treatment.

Complications were as follows: 12 patients had nystagmus, 6 convulsions, 8 severe insomnia, 10 severe headache, 11 great excitation and 39 patients vomited. These conditions occurred mostly after a lumbar puncture or intraspinal injection. Of the 35 complications 3 (8.5 per cent) occurred in patients up to the age of 1 year, 14 (40 per cent) in 1 to 5 year old patients, 12 (34.3 per cent) in 6 to 10 year old patients and 6 (17.2 per cent) in 12 year old patients. Major complications were hydrocephalus in 3 patients under 1 year of age, 1 died on the fifty-fourth day, after the administration of 42 Gm of streptomycin, another died on the forty-fifth day, after the use of 39 Gm of streptomycin, and the third died on the twelfth day, after administration of 15 Gm. On admission disturbance of vision was present in 34 (40.4 per cent), of these, 10 patients were in coma, 12 were in the precoma stage and 10 were semi-conscious. Ten patients had papillary stasis, 10 had papillitis, 4 had atrophy of the optic nerve, 1 had central blindness, 3 had choroiditis, 1 had otitis media purulenta, and 3 had otitis interna and vertigo. All the complications except one cleared up, a 2½ year old child suddenly became deaf and remained so. On admission 16 patients had spastic paralysis, this developed in 7 patients during treatment. Of these 23 patients, 18 (78 per cent) had general spastic paralysis and 5 (22 per cent) had partial spastic paralysis. Two patients had hemiplegia.

Death of Prof Kadri Rashid Anday

Turkey's first pediatrician, Prof Kadri Rashid Anday, formerly of the Imperial Ottoman Medical School, Istanbul, died at his home in Istanbul at the age of 74. When he was in his third year at the medical school, because of his political inclinations, he went to Paris. He graduated from the medical school there with high honor and remained in Paris for seven years. On his return to Turkey, in 1901, he taught physiology at the Civil Imperial Medical School and opened the first children's polyclinic in Turkey. Previously infants had been treated by obstetricians and older children by internists. The polyclinic was the start of special training for Turkey's pediatricians, sick children were brought to it from remote parts of the country. In 1907 Dr Anday became chief physician to the Istanbul-Shushli Children's Hospital and in 1907 was offered the first chair of pediatrics at the University of Istanbul. When the university was reorganized, in 1933, Prof Anday was retired, after 32 years as a faculty member. As pediatrician to the Istanbul, Pera Municipal Hospital he continued his work for 12 more years. He was president of the Society of Turkish Pediatricians and had publications in the Turkish and the French languages to his credit. He published numerous articles on tuberculosis and rheumatism in French medical periodicals. He was also a noted physiologist.

SPAIN

(From a Regular Correspondent)

MADRID, March 15, 1950

History of Spanish-American Medicine

The first issue of the *Archivos Ibero-Americanos de Historia de la Medicina* was published recently in Spain by the Superior Council on Scientific Investigations, under the combined editorship of Drs A Ruiz Moreno of Buenos Aires and P Lain Entralgo of Madrid with the collaboration of Dr J B Lastres of Lima, Drs Alberti, Paniagua, Valle-Inclan and Palafox, all of Madrid, Granjel of Salamanca and Jironi of Valencia. The following original articles are published in this issue: "History of Hippocratic Clinic," by Dr P Lain Entralgo, "General Pathology of Arnaldo de Vilanova," by J A Paniagua,

"Anatomic Lexicon of Bernardino Montaña de Monserrate and Juan de Valverde," by C Valle-Inclán, 'Jung's Psychology in the History of Relationship Between Medicine and Religion,' by L S Granel, and 'Pathos and Saint Jeronimus' Diet," by J Janini Cuesta. These articles reflect a trend toward the Spanish history of medicine. A classical text, "Physicians Caution," by Arnaldo de Vilanova, a great representative of Spanish medicine of the thirteenth century appeared also in the first issue. All future issues of the periodical will contain a reprint of a classical text.

Coming issues will contain interesting articles on galenic scripts over the pulse by Dr A Ruiz Moreno, on Incan medicine by Dr J B Lastres, on P Gilabert Jofre, founder of the first asylum for the insane in the world by Dr Marco Merenciano, on human anatomy and physiology in Averroes work by Dr Molero of Granada, on hospitals during the Spanish colonization in America by Dr Guijarro and on anatomic illustrations not described to date (rare variants of the "Fliegende Blätter") by Prof Ahumada of Buenos Aires.

ISRAEL

(From a Regular Correspondent)

JERUSALEM May 10 1950

Tuberculosis Among New Immigrants

The medical aspect of the immigration problem is characterized by the fact the immigrants have been affected by the most difficult hygienic and social conditions through their stay in various camps of the world.

In his report on immigration and the tuberculosis problem in *Harefuah* of June 15, 1949, J Khasis pointed out that among the immigrants of 1946-1947 there were 315 per cent clinical pulmonary tuberculosis cases. Of these 1 to 15 per cent required hospitalization, i.e., 206 patients out of 20,000 immigrants.

Tuberculosis is prevalent among the Yemenite Jews in Israel. While many specialists are impressed with the considerable immunity to tuberculosis of Sephardi and Ashkenazi Jews, phthisiologists in Israel are concerned about the limited resistance of Yemenite Jews. Twenty-five statistical investigations of populations all over the world have shown that the tuberculosis mortality of Ashkenazi and Sephardi Jews is two to three times smaller than that of Christians and five to seven times smaller than that of Moslems living in the same country.

In the Safad Hospital there were among 1,204 Jewish patients during the last 10 years, 75 per cent Ashkenazi Jews, 128 per cent Sephardi Jews and 122 Yemenite Jews. After the hospital in Safad was turned into a military tuberculosis hospital, the new ward had 25 per cent Yemenites among the soldiers.

In the absence of official statistics some calculations have been made according to which the morbidity of Yemenite Jews was found to be 25 times higher than that of the other Jews in Israel. The morbidity of Sephardi and Ashkenazi Jews is 526 out of 100,000, compared with 1,525 Yemenites.

Tuberculosis mortality per 100,000 is 564 among Sephardi and Ashkenazi Jews and 305 among Yemenites.

In the course of an address to the Association for the Study of Immigrants Problems, Dr Lee Gennis, medical director of 'Malben' the new rehabilitation service for sick immigrants, mentioned that even greater than the need for general hospital accommodation in Israel was the grave need of beds for patients with tuberculosis and mental disease. About 60,000 immigrants had been examined and roentgenograms made since March 1949. Out of every 1,000 persons, 6 had active tuberculosis—double the world average. This average was expected to rise to 8. A total of 3,600 hospital beds were needed for those who had already arrived, only 650 were available.

Tuberculosis was the most widespread disease among the immigrants and represented one third of all the illnesses.

Infant Growth Under Abnormal Conditions

During the siege of Jerusalem in the summer of 1948 the caloric value of daily distributed food decreased from the usual 2,500 calories per day to 1,360 in April, 940 in May and 670 in June. In addition, children and infants suffered from lack of fresh air and sun as the constant shelling of the town made it dangerous or impossible for mothers to go for a walk with their children.

In comparison with war conditions in other countries, according to a report by Dr Walter Hirsch, two characteristic features of the siege may be pointed out: (1) the short duration and (2) the severe restrictions concerning food, sun and fresh air. It could be supposed that the time of the Jerusalem siege was too short for demonstration of a growth deficit in children. This assumption could be confirmed in 84 children between 2 and 12 years of age, whose growth continued normally during the siege. Also, 50 infants up to 2 years of age had increased in height, 33 of them had grown normally in accordance with their age, but in 18 infants the increase in length had been more—double or even triple—than what had to be expected according to age and time. Such an increased growth in infants under abnormal conditions is a strange phenomenon, which has not been mentioned before in scientific papers. The increased growth has resulted in temporary damage only. All the infants with increased growth had lived during the siege under conditions of lack of sun and fresh air in addition to malnutrition. One is tempted to cite analogies in the life of animals and plants such as the enormous growth of cave animals in former times and the increased growing impulse of certain plants (potatoes and onions) if kept without light. With all due precaution a certain parallelism may be mentioned between the heliotropism of plants and the increased growth impulse of these babies in the dark.

Eosinophilic Erythroderma

In 1944 and 1949-1950 an increased incidence of eosinophilic erythroderma was reported. The cause of the syndrome, which combines transitory, migrating swellings of various parts of the skin and mucous membranes with eosinophilia of the blood, has not been discovered as yet. Lyon recently reported his observation (*Acta med orient* 9:17, 1950).

The swellings of the skin and mucous membranes, combined with warmth, occasionally with a reddish tinge of the affected areas, are also observed in the lymph nodes and in the lungs, as transitory pulmonary infiltrations, periphlebitis and peripheral endarteritis. Swelling of the liver, hydroxy of the knee and pleural effusions were observed. The blood cell count showed alternating amounts of leukocytes and increased eosinophils. A biopsy could be made in the case of one patient with characteristic relapsing swellings of the skin (forearm). It was found that the capillaries and small arteries of the papillary zones and of the upper portions of the cutis showed considerable engorgement. There was hyaline thickening of the walls of small blood vessels. Some blood vessels were surrounded by sparse accumulations composed mainly of small and large round cells. Some of the cells resembled lymphocytes, many others were larger and showed basophilic granulation of the cytoplasm.

Lyon is of the opinion that eosinophilic erythroderma is an allergic disease affecting mainly the capillaries. There is no single cause of this illness (such as filariis) but various allergens are acting together (intestinal parasites including *Escherichia histolytica*). Antihistamines are successful for a short time as a symptomatic treatment. The prognosis is favorable but where it persists or recurs frequently for years the question of the degree of permanent vascular damage remains to be answered.

COLOMBIA

(From a Regular Correspondent)

BOGOTÁ, May 4, 1950

New Technic of Plastic Reconstruction of the Biliary Tract

Dr J T Henao of Bogota is the originator of a new surgical technic for the plastic reconstruction of the biliary tract in cases of obstruction. The new operation, called by the originator cholecystojejunoplastogastrostomy, consists of the operator's isolating a segment of the first jejunal loop, leaving it on its pedicle and reestablishing the continuity through end to end enteroanastomosis. This isolated segment of jejunum, which replaces the ductus choledochus, is anastomosed at its distal end with the stomach or else with the duodenum so that there is not a direct cholecystogastrostomy, but an intestinal "bridge" interposes between the gallbladder and the stomach.

The operation was performed first on dogs, in the Laboratory of Experimental Surgery of the Faculty of Medicine of the National University and later on 6 patients in the San Jose Hospital of Bogota. The work was reported on for the first time before the Society of Biology of Bogota and published later in the *Boletín de la Clínica de Marly*.

The technic devised by Dr Henao has been favorably commented on by a British scientist, Dr Ronald W Raven.

Colombian Conference on Radiology

The first conference on radiology was held at Bogota, Colombia, March 24-26, 1950, under the auspices of the Colombian Society of Radiology. More than 50 delegates, including radiologists from Bogota, Medellín, Barranquilla, Cali, Bucaramanga, Ibagué and Armenia, were present. The scientific sessions were held at the National Academy of Medicine and at some hospitals and clinics, and the social activities at the Medical Club. Dr Gonzalo Esguerra Gomez, honorary president of the Colombian Society of Radiology, made a speech at the inaugural session and pointed out the importance of organization of a college of radiologists. The scientific topics discussed were electroencephalography, Dr G Sierra, teratology, Dr J Rosas Cordovez, pulmonary tomography, Dr D Marino Zuleta, xanthomatosis, Dr G Nascimbene, anthropometric index and transverse diameter of the heart, Dr Esguerra Gomez, herniation of intervertebral meniscus, Dr F Convers, bronchopulmonary segments, Dr A Torres Focke, radiopelvimetry, Dr B Perez Mejia, prostate and urethra, Dr C Elias Pedraza, factors modifying the results of radium therapy in cancer, Dr S Londono, lymphosarcoma, Dr M Gaitan Yanguas, roentgen therapy of tuberculous adenitis, Dr A Florez, neoplasm of the duodenum, Prof Oriol Arango, radiologic aspects of calices of the renal pelvis, Dr J Medina Medina, anencephalia, Dr P Hane, radiology of the skull, Dr B Salazar, radiology of the duodenum, Dr A Castro Riaño, tumors of the mediastinum, Dr L E Lozano, metabolic craniopathy, Dr M Barona, gastroenterology, Dr Alphonso Jaramillo Arango, and gastroduodenal polyposis, Drs B Jimenez and A Rey Barrera. There was an exhibit of radiologic equipment. Drs G Esguerra Gomez and F Convers presided at the conference. Dr A Torres Focke was secretary. The assembly ended on March 26 with a banquet at the Temel Restaurant. Drs A Jaramillo Araujo and D Correa made speeches during the banquet, pointing out the significance of this meeting, which promoted a permanent interchange of ideas and the progress of radiology in the country. The new board of directors is: Dr D Correa, president, Dr R Uribe Velez, vice president, Dr A Arango Mejia, treasurer, Dr A Torres Focke, general secretary, headquarters in Bogotá, and Dr B Perez Mejia, regional secretary, headquarters in Medellín. It was decided that the board of directors of the society should

convene successively in the important cities of Colombia, Medellín having been selected for the second conference, in 1951.

Renal Circulation

Drs Luis M Borrero H, Gonzalo Montes D and Leonor Martinez have reported their experiments on renal circulation at the Laboratory of Medical Research of the National Faculty of Medicine. They recently presented a preliminary report before the Society of Biology of Bogota. They measured the glomeruli of the kidneys of dogs to determine the differences in size of the cortical (peripheral) and juxtamedullary (those in the deepest zone of the cortex glomeruli). The Raytand procedure was used, by which small fragments of congealed kidneys of dogs were triturated in a mortar under a pressure of 45 Gm. The pestle was moved laterad and without pressure, for a given period of time, to standardize trauma. A large drop of the suspension was placed on a slide and smoothly extended to obtain thick smears. Reading of the smears was made with the ocular micrometer. The search and measuring were done with magnifications of 50 diameters and a 200 increase, respectively. The total number of measurements was 2,300 on 1,200 glomeruli, as follows: 300 measurements were made on a normal kidney in which no previous injection was made, and 100 malpighian corpuscles from the external, medial and internal thirds of this kidney were measured. An equal number of measurements was made on a normal kidney previously injected with warm gelatin containing minium. The injection was given intra-arterially and with pressure. Six hundred measurements were made on a normal kidney not previously injected. Grouping by frequency was regular in all the measurements. The calculations were made from the direct data of micrometric measurements. Only the characteristic values of the groups were translated into microns. The average values of the measurements were as follows: In normal kidneys the diameters of the glomeruli of the cortex in the external third were between 160 to 168 microns, in the medial third, between 166 and 177 microns, and in internal third, between 157 and 168 microns. In the kidney injected with gelatin containing minium, the diameter in the external third was 204.83 microns, medial third, 211.50 microns, and internal third, 201.92 microns. The authors noted that between the renal corpuscles of a given zone of the kidney, the difference in size is noticeable. These data indicate that the excretory function of the corpuscles are not quantitatively identical. In the three kidneys studied, the glomeruli of the medial third are of the larger size, whereas those of the external and internal thirds are of equal size. The qualitative relations were also noticeable when the corpuscles were observed in thick smears.

New Members of Medical Society

Drs C A Pantoja, R Serpa and G Muñoz Rivas were recently elected members of the National Academy of Medicine. Dr Pantoja is professor of clinical surgery of the faculty of medicine of the National University and director of the National Institute of Radium for diagnosis and treatment of cancer. Dr R Serpa is professor of clinical gynecology of the aforementioned faculty and Dr G Muñoz Rivas is a technician at the Clinical Laboratory, he has distinguished himself especially in his work on the biology of the Hansen bacillus and the study of fleas as vectors of leprosy. With these three nominations the academy completes its traditional membership of 40 academicians. The National Academy of Medicine was founded in 1872 and given recognition by law 71 of 1890. It is the consultative agency of the national government in matters of medicine and was decorated in 1934 with the Cross of the Order of Boyaca. The academy receives a small subvention from the government for its support.

Correspondence

TRANSFUSION WITH POSITIVE PRESSURE

To the Editor—In a letter to the Editor in the March 18 issue of THE JOURNAL, under the heading "Transfusion with Positive Pressure," Wiener has criticized the use of positive pressure for increasing the speed of transfusions. Although I have had no experience with the apparatus supplied by a commercial firm mentioned in the letter, I cannot accept unchallenged Wiener's criticism of the use of positive pressure to increase the speed of transfusions.

During the past 25 years I have given between 2,500 and 3,000 transfusions using positive pressure and for a number of years supervised the giving of transfusions by the house staff on the medical wards of the Peter Bent Brigham Hospital, where this method was in routine use. By this means it has been customary to introduce into the patient 500 cc of blood within seven to 15 minutes. At no time have we encountered any difficulty as the result of the rapid infusion of the blood, and no fatality has occurred as the result of an air embolism.

It is my belief as a result of this experience that the rapid method of infusion, using positive pressure, is the method of choice particularly for the patient who must receive repeated transfusions. The use of the rapid method has several advantages over the slower gravity method. Because of the shorter interval required, the transfusion may be given or supervised throughout by a skilled operator. Transfusion is not a simple procedure without danger to the patient and there is no more reason that it should be given by inexperienced or unskilled personnel than that a surgical procedure be carried out by other than a trained surgeon. Another important consideration is that of the difference in the psychic trauma produced by the two methods. The relief from fear of transfusions which I have seen in patients after receiving the blood in seven minutes who have previously been subjected to one to five hours of worry during transfusion by gravity, often unsupervised is most dramatic.

The present trend toward the infusion of blood particularly by the gravity method, by technicians, nurses or untrained interns without constant supervision is a deplorable situation fostered largely by the need for 'fool-proof' methods in order to spare physician personnel during the late war. The fatal and nearly fatal accidents following transfusions which have come to my attention during the past few years have followed infusion by the gravity method and have in most instances occurred because they were given by unqualified personnel. It is the responsibility of the medical profession to see that the same degree of experience and skill be required for the transfusionist as is expected of the physician or surgeon qualified to properly administer the more technical medical or surgical procedures.

WILLIAM P. MURPHY M.D.,
20 Gloucester Street,
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"CONSTITUTIONAL INFERIORITY"

To the Editor—In the abstract of discussion of the article on "Neurocirculatory Asthenia," in THE JOURNAL of March 25, Dr. Arthur Master of New York states that patients having this clinical picture are "constitutionally inferior." In the conclusions reached by the authors of the article one reads: "There is no evidence to suggest that patients with this disorder develop in high prevalence, hypertension, heart disease, peptic ulcer, diabetes mellitus, asthma, thyrotoxicosis, ulcerative colitis, hysteria or schizophrenia." Admitting that patients of this

type have a limited environmental adaptability, why should they be branded 'as constitutionally inferior'? To be logical there would be more reason to apply the term to those having hypertension, peptic ulcer or degenerative heart disease which are some of the conditions not prevalent among persons with neurocirculatory asthenia and how about the epileptic, the insane and those who carry through life the inheritance of subnormal characteristics? We should start a move to eradicate from medical language the term constitutional inferiority and replace it with a more definite and specific term. Reassurance is said to be a means of helping the patient with neurocirculatory asthenia. It is not easy to sell him this weapon if he happens to know that he is considered hopeless under the concept of constitutional inferiority.

L. G. VERGARA, M.D.,
Albuquerque, N. M.

Medical Motion Pictures

Breast Self Examination 16 mm. color sound showing time 15 minutes. Supervision and sponsorship jointly by the American Cancer Society and the National Cancer Institute. Produced in 1950 by Audio Production Inc. New York. Procurable on purchase from the American Cancer Society 47 Beaver Street New York or on loan from state cancer societies, state health departments and the regional depots of Association Films New York, Dallas, Chicago and San Francisco.

This film presents the subject of carcinoma of the breast with reference to early discovery of the tumor by the patient in a concise and sensible manner, clearly enough to be easily understood by a lay audience, yet it cannot fail to be interesting to physicians concerned with the earlier discovery of breast changes by their patients. Throughout the film the importance of the examination by the physician is repeated. A physician introduces the subject, a physician who teaches the woman the method of examination of her own breasts and who emphasizes the importance of periodic check-up. It is impressed on the patient that she should note any abnormality during the monthly self examination her physician is the person to pass final judgment in the matter.

Self examination of the breasts once monthly, after the menstrual period, is advised and a simple method of thorough inspection and palpation is taught. The approach is excellent, since it makes for closer relationship and understanding between physician and patient. The material is presented in a manner to avoid generating cancerphobia. It is made plain that not all lumps are carcinoma and that recourse to the physician and his diagnostic skill is reasoned caution, whereas self diagnosis represents unreasoning fear of cancer.

The film might be adversely criticized for the brevity of note accorded to the aforementioned common sense attitude, to the importance of the unilateral lump and to the use of the term 'cure'. There are those who hold that 'arrested' is preferable to 'cured' with respect to carcinoma. The word palpation as used in the script seemed somewhat technical for the audiences which it is hoped this film will reach.

This picture is excellent for physician and layman alike since its influence should make first the home and then the physician's office a "cancer detection center" for lesions of the breast. Since successful surgical treatment is dependent on early discovery and early accurate diagnosis, it is by such teaching that the appalling cancer death rate may be improved. The film can be highly recommended for lay groups, female college students and nurses. In addition it would provide an excellent motion picture for the physicians to use in talks to various meetings of such groups. The photography, narration, cast and presentation are outstanding. An illustrated brochure gives a synopsis of the picture and instructions for showing the film. The instructions include the following statements: "The one most helpful thing will be the participation of a doctor. Both the program chairman and the physician should see the film in advance of the meeting."

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Chiropractors Charge of Obtaining Money by False Pretenses—The defendants, licensed chiropractors, were charged by information with a conspiracy to obtain money by means of a confidence game and by false pretenses, by pretending that certain roentgenograms made by them demonstrated that the internal organs of the complaining witness were diseased and could be cured by a course of colonic irrigations. Three of the five defendants were found guilty, and from such conviction they appealed to the Supreme Court of Colorado.

All the convicted defendants were licensed practitioners of the "science of locating and removing interference with nerve transmission" as defined by Colorado statute, section 2, chapter 34, 1935 C S A, which statute further confers on a licensee "the right to practice chiropractic as defined and to use such other sanitary and hygienic measures necessary to such practice." The defendants specialized in colonic irrigation along with other chiropractic treatments.

The complaining witness testified that in answer to an advertisement relating to a ten point free examination she went to the defendants' health clinic. One of the defendants placed her in front of a fluoroscope and told her that her liver was all right and then told her that a roentgenogram was required. She was given an enema and the roentgenogram was taken. About ten minutes later another of the defendants discussed the roentgenogram with her and advised her that it looked as though she had a malignant mass on the side, a lot of adhesions at the bottom and ulcers and tumors on the side. She asked the doctor what kind of treatment would be given, and he said it would be a protracted matter and that she would have to take forty-five treatments and at the end of each treatment a roentgenogram. She inquired about surgery, and he said that she could have it if she wished and mentioned a number of surgeons who could perform it. She asked what guarantee the defendant could give that she would be well if she followed his treatment, and he said they could not give any guarantee and told her further that, if she were to take the defendants' treatment and did not get well, she could then submit to operation. The next day she was referred to an osteopathic radiologist who gave her a barium enema and took a roentgenogram using a fluoroscope. He testified at the trial that in his opinion the patient had mild adhesions, that she did not suffer from an ulcerated condition of a portion of the colon and that his examination did not indicate that the complaining witness had a malignant mass. After having received this second diagnosis, the complaining witness went to the office of the district attorney and complained about the treatment received in the defendants' clinic. She then returned to the defendants' office with a representative from the district attorney's office, and the defendant, in interpreting the complaining witness's roentgenogram, made about the same statements to the representative of the district attorney as he had made to the complaining witness.

On appeal the defendants specified some twenty-one points for reversal, but the main points considered by the Supreme Court were whether or not the trial court erred in refusing to direct a verdict of not guilty and whether or not the evidence was sufficient to support a conviction for the crime of conspiracy. Viewed in the most favorable light for the prosecution, said the Supreme Court, the evidence does not disclose any acts of the defendants that apparently were criminal or unlawful, it does emphasize the fact that the defendants were following the prescribed and adopted standards of their profession and that such standards have full recognition in the law. The state of Colorado has licensed the defendants as chiropractors to follow and practice the tenets of their chosen school of thought. Natural sequence includes diagnosis and prognosis, and this is exactly what they were doing.

It is to be assumed, the Supreme Court continued, that the facts surrounding the diagnosis and prescribed treatments of the

complaining witness provided the prime occasion for the district attorney to encircle these defendants with the strong arm of the law, and the facts disclosed by her testimony must be considered as of first importance in determining their guilt or innocence. It is glaringly apparent from these facts, said the Supreme Court, that there was no absolute representation made as to efficacy of the treatment and no false promise of a cure. When the complaining witness went to the clinic she undoubtedly expected to get an opinion as to her ailments, which she received. She paid nothing for the roentgen examination, enema, blood test, heart examination or any service rendered her. She relied on nothing that was told her and lent herself to the aid of the plan for this prosecution.

Another witness, a paid informer, employed by the district attorney, testified as to the diagnosis given her by the defendants that she too was told of four physicians who were equipped to take the roentgenograms. She said one of the defendants stated that he thought the difficulty lay in the colon and she further testified that the doctor said that their type of treatment, colonic irrigation, "probably would help, that they had helped a lot of other people by their methods of treatment and that it might not be too helpful as to a dropped colon." She paid \$3.50 deposit on the roentgenogram that was taken, did not pay anything further and admitted having concealed her history as to medical treatments and operations. She obtained the diagnostic opinion and the suggested treatments, and there was no coercion in connection with the acceptance of the diagnosis or treatment given her.

The testimony of these two witnesses relative to the means charged for carrying out the alleged conspiracy, as well as the testimony of numerous other witnesses of no more indictable character, was before the trial court, said the Supreme Court, and the insufficiency thereof specifically called to its attention by the motion for a directed verdict. There was nothing to sustain the charge in the information other than the opinions of the defendants as to a probable condition of the patients examined. The court should have recognized that an opinion cannot be proved to be false like an allegation of fact. The court also well knew that the prosecution had alleged that the diagnosis and prophecy made by the defendants were false, that the falsity of the diagnosis and prognosis was not proved but a matter of opinion only. The motion for a directed verdict, the Supreme Court concluded, should have been sustained.

The trial court was in further error, the Supreme Court continued, in unduly limiting the defendants in the offer of evidence to show in actual cases, by witnesses on the stand, the efficacy of the treatments suggested by them, which were alleged to be false and ineffective and used for the purpose of defrauding the public. The efficacy of a medical treatment is to be determined by specific instances of its use. The guilt or innocence of these defendants was not measured by the standards of their own profession. In this, a criminal case, there are many reasons why the rule announced in a prior Colorado Supreme Court case should be followed. In that case it was said, "all that the physician and dentist in this case were required to render in the way of service, in the diagnosis and treatment of their patient, was such a degree of skill and care as is ordinarily possessed by those in the practice of their profession under similar conditions of the patient and in their particular locality. Whether or not this was done can usually be determined only from the opinions of those learned in the same professions." In the present case, there was nothing before the court to show that the defendants went beyond the accepted standards of their adopted theory of practice and treatment. If, in engaging in the practice of a lawful profession, they erred in their judgment, there would be no civil liability, much less criminal liability. Moreover, said the Supreme Court, there was undisputed evidence before the court that there was a standing offer by the defendants for the refund of money paid if the patient was not satisfied with the treatment, and it was clearly shown that, in all cases where requests were made, the money was refunded. It further is significant that this procedure was followed long before the prosecution was started. This one feature of the evidence alone was sufficient to indicate to the court that the charge against the defendants here was devoid of the element

of intent to defraud. All the circumstances on which the prosecution depended to establish a conspiracy were as consistent with innocence as with guilt, and in such circumstances no conviction can lawfully be sustained. Furthermore, it is interesting to note that two of the defendants who gave the colonic irrigations and who collected the money were found not guilty of conspiracy and that one of the defendants found guilty was shown to have been absent from the city during the principal period of time involved in this case.

Accordingly the judgments of conviction entered by the trial court were reversed—*Chesney et al v People*, 212 P (2d) 1011 (Colo., 1949).

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Various locations June 19 21 *Part III* Twenty nine centers June 6 29 Exec Sec. Mr E S Elwood 225 S 15th Street Philadelphia

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written* Various locations, July 21 *Oral* Chicago Oct. 8 11 Sec. Dr Curtiss B Hickox 745 Fifth Ave. New York 22

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY *Written* Various locations Sept 14 *Oral* Detroit Oct. 20 22 Sec. Dr George M. Lewis 66 East 66th St. New York 21

AMERICAN BOARD OF INTERNAL MEDICINE *Oral* San Francisco June 21 23 The oral examinations in the subspecialties will be held at the same time and places *Written* Oct. 16 Asst Sec. Dr William A. Werrell 1 West Main Street Madison 3 Wis

AMERICAN BOARD OF NEUROLOGICAL SURGERY Chicago Oct. 1950 Applications no longer accepted Sec. Dr W J German 789 Howard Ave. New Haven Conn

AMERICAN BOARD OF OPHTHALMOLOGY *Written* Various Centers Jan 5 6 1951 San Francisco March 11 15 New York May 31 June 4 Sec. Dr Edwin B Dunphy 56 Ivis Road Cape Cottage Maine

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Part II* Chicago Jan 25 26 Final date for filing applications is Aug 15 1950 Sec. Dr Harold A Soñeld 122 South Michigan Avenue Chicago 3

AMERICAN BOARD OF OTOLARYNGOLOGY Chicago October Sec. Dr Dean M Lierle University Hospital Iowa City

AMERICAN BOARD OF PATHOLOGY St Louis Oct. 13 14 Sec. Dr Robert R Moore 507 Euclid Ave. St Louis 10

AMERICAN BOARD OF PEDIATRICS *Written* San Francisco, June 30-July 2 *Oral* Chicago Oct 13 15 and Boston Dec 13 Exec Sec., Dr John McCh Mitchell 6 Cushman Road Rosemont Pa

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION *Oral and Written* Boston Aug 26-27 Final date for filing applications is April 1 Sec. Dr Robert L. Bennett 30 N Michigan Ave Chicago

AMERICAN BOARD OF PLASTIC SURGERY *Oral* May/June. Sec. Dr Louis T Byars 4647 Pershing Avenue St Louis Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY San Francisco, June 23-24 Applications no longer accepted Next examination December 1950 Final date for filing applications is Sept. 1

AMERICAN BOARD OF RADIOLOGY *Oral* Chicago week of June 18. Sec. Dr B R Kirklín 102 110 Second Ave S W Rochester Minn.

AMERICAN BOARD OF SURGERY *Written* Various centers Oct. 25 Final date for filing applications is July 1 Sec. Dr J Stewart Rodman, 225 South 15th Street Philadelphia

AMERICAN BOARD OF UROLOGY Chicago Feb 10-14 1951 Final date for filing applications is Sept. 1 1950 Sec. Dr Harry Culver 7935 Sunny-side Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

ALABAMA Examination Montgomery June 27 29 Sec. Dr D G Gill 519 Dexter Avenue Montgomery

ALASKA * Juneau, Sept. 5 Special examinations given on application. Sec. Dr W M Whitehead Box 140 Juneau

ARIZONA * Phoenix July 22 Sec. Dr J H Patterson 316 W McDowell Road Phoenix

CALIFORNIA Examination *Written* San Francisco June 19 22 Los Angeles Aug 21 24 Sacramento Oct. 16 19 Examination *Oral and Clinical for Foreign Medical School Graduates* San Francisco June 18 Los Angeles Aug 20 San Francisco Nov 12 *Reciprocity, Oral Examination* San Francisco June 17, Los Angeles Aug 19 San Francisco Nov 11 Sec. Dr Frederick N Scatena, 1020 N Street, Sacramento 14

CONNECTICUT * Examination Hartford July 11 12 Sec. to the Board Dr Creighton Barker, 160 St. Ronan St. New Haven. *Homeopathic* Derby July 11 12 Sec. Dr Donald A. Davis 38 Elizabeth St. Derby

DELAWARE Examination Dover July 11 13 *Reciprocity* Dover July 20 Sec., Dr J S McDaniel 229 S State St. Dover

FLORIDA * Jacksonville June 25 27 Sec. Dr Frank D Gray 12 N Rosalind Avenue Orlando

GEORGIA Examination Atlanta and Augusta June. *Endorsement* Atlanta June. Sec. Mr R. C. Coleman 111 State Capitol Atlanta 3

HAWAII Examination Honolulu July 10-13 Sec. Dr L. L. Tilden. 1020 Kapiolani St Honolulu.

IDaho Boise July 10 Sec. Mr Armand L. Bird 305 Sun Bldg Boise

INDIANA Examination Indianapolis June. Sec. Dr Paul R. Tindall, 1138 K of P Bldg Indianapolis.

MAINE Examination and *Reciprocity* Augusta July 11 12 Sec. Dr Adam P Leighton 192 State St Portland.

MARYLAND Examination Baltimore, June 20 23 Sec. Dr Lewis P Gundry 1215 Cathedral Street Baltimore 1 *Homeopathic* Baltimore June 20-21 Sec. Dr John A Evans 612 W 40th St. Baltimore

MASSACHUSETTS Examination Boston July 11 14 Sec. Dr George L. Schadt Room 37 State House Boston 33

MINNESOTA * *Written Examination* Minneapolis June 20-22 Sec. Dr J F Du Bois 230 Lowry Medical Arts Building St Paul 2

MISSISSIPPI Jackson June 20 21 Asst Sec. Dr R N Whitfield Jackson 113

NEVADA *Endorsement* Carson City August 7 Sec. Dr George H. Ross 112 Curry Street, Carson City

NEW HAMPSHIRE Concord Sept. 13 Sec. Dr John Samuel Wheeler 107 State House Concord

NEW JERSEY Examination Trenton June 20 23 Sec. Dr E. S Hallinger 28 West State Street Trenton.

NEW MEXICO * Santa Fe Oct. 9 10 Sec. Dr Charles J McGoeys Coronado Building Santa Fe

NEW YORK Examination Albany Buffalo New York and Syracuse, June 27 30 Sec. Dr Jacob L. Locliner Jr 23 S Pearl St. Albany

NORTH CAROLINA *Written* Raleigh June 19 22 *Endorsement* Morehead City July 22 Sec. Dr Ivan Procter 226 Hillsboro Street Raleigh

NORTH DAKOTA Examination Grand Forks July 5 7 *Reciprocity* Grand Forks July 8 Sec. Dr C J Glaspel Grafton

OREGON * Examination Portland July 6 8 *Endorsement* Portland July 28 29 Sec. Mr Howard I Bobbitt 609 Failing Building Portland

PENNSYLVANIA Examination Philadelphia and Pittsburgh July 11 14 Act. Sec. Mrs Marguerite G Steiner 351 Education Bldg Harrisburg

PUERTO RICO Examination Santurce Sept. 5 Sec. Mr Luis Cueto Coll Box 3717, Santurce.

RHODE ISLAND * Examination Providence July 6 7 Sec. Mr Thomas B Casey 366 State Office Building Providence

SOUTH CAROLINA Examination Columbia June 26 29 *Reciprocity* First Monday of each month Sec. Dr N B Heyward 1329 Blanding Street Columbia.

SOUTH DAKOTA * Sioux Falls, July 18-19 Sec. Dr C E Sherwood 300 First National Bank Bldg Sioux Falls

TEXAS * Examination Austin, June 19 21 Sec. Dr M H Crabb 1714 Medical Arts Bldg Fort Worth 2

UTAH Examination Salt Lake City June Dir. Dr Frank E. Lees 324 State Capitol Building Salt Lake City

VIRGINIA Examination Richmond June 23 24 *Endorsement* Richmond June 22 Sec. Dr K D Graves 631 First St. S W Roanoke

WASHINGTON * Seattle July 17 19 Director Department of Licenses Mr Edward C Dohm Olympia

WEST VIRGINIA Examination Charleston July 10 12 Sec. Dr N H Dyer Capitol Bldg Charleston

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ALASKA Examination Juneau last week in August. Sec. Dr C. Earl Albrecht Box 1931 Juneau

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NEW MEXICO Examination Santa Fe Sept 17 Sec. Mrs Marguerite K. Cantrell Box 1522 Santa Fe

OKLAHOMA Examination Oklahoma City Sept 15 Sec. Dr Clinton Gallaher 813 Braniff Building Oklahoma City

RHODE ISLAND Examination Providence August 9 Chief Division of Professional Regulation Mr Thomas B Casey 366 State Office Building Providence

TENNESSEE Examination Memphis July 7 8 Sec. Dr O W Hyman 874 Union Ave Memphis 3

TEXAS Examination Austin October Sec. Brother Raphael Wil on 306 Nalle Building Austin

WASHINGTON Examination Seattle July 12 13 Director Department of Licenses Mr Edward C Dohm Olympia

CURRENT MEDICAL LITERATURE

AMERICAN

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Titles marked with an asterisk () are abstracted below*

American Journal of Diseases of Children, Chicago 79 205-408 (Feb.) 1950

- Prevalence of Rheumatic Heart Disease at High Altitudes B G Wedum, W Darley and P H Rhodes—p 205
Acute Conjunctivitis Caused by Hemophilus D J Davis and M Pittman—p 211
Epilepsy in Twins. Analysis of Five Twin Pairs, with Electroencephalographic Studies S C Little and N K Weaver—p 223
*Bronchopulmonary Mycosis. Simultaneous Primary Occurrence in 4 Children and Their Mother with Subsequent Healing by Diffuse Miliary Calcification, Twelve Year Observation B M Hamil—p 233
*Treatment of Edema in Disease of Kidney H H Boyle and L E Jackson—p 272
Six Examples of Precocious Sexual Development. II. Studies in Growth and Maturation H P G Seckel—p 278
Fluoroacetate Poisoning. Review and Report of Case D C Gajdusek and G Luther—p 310

Bronchopulmonary Mycosis—Hamil discovered bronchopulmonary mycosis in 4 children and their mother. Records have been accumulated during a period of twelve years of the onset and progress of bronchopulmonary mycosis in the 4 siblings and their mother, with recovery in all of the children. The mother died of a fatal accident. The incriminated organisms, *Monilia (candida) pinoyi* and *Aspergillus niger* probably reached the respiratory tract of these patients from a common source, possibly grain and hay dust and contaminated chicken feathers. It is assumed that the organisms became pathogenic as the result of an attack of "grippe" or influenza. The subsequent course of the disease in the children was protracted because of inadequate early treatment. Massive doses of potassium iodide orally, sodium iodide intravenously and inhalations of ethyl iodide were followed by progressive healing. The fluffy parenchymal nodules, characteristic of the roentgenograms in all the patients, healed through fibrosis to scattered, complete, dense miliary calcification. The first appearance of calcium in all the patients was about three years after the onset of acute symptoms. Serial blood cell counts and sedimentation rates showed characteristic changes similar to those observed in tuberculosis. Repeated tests of skin reaction to intradermal injection of various stock fungi and bacterial vaccines and to autogenous *M. pinoyi* and *A. niger* vaccines indicated the extent of allergic response to heterologous fungi but also showed the more specific response to the autogenous organisms. Complement fixation and agglutination reactions were obtained. Progressive roentgenologic changes over ten years of observation indicate the complete healing of the pulmonary lesions consistent with the present good state of health of the 4 siblings.

Edema in Disease of Kidney—Boyle and Jackson adhered to the differentiation between nephrosis and chronic nephritis outlined by Aldrich—the absence of hematuria, hypertension and azotemia in nephrosis and their presence in chronic nephritis. This rule cannot be rigidly employed in all patients. When a child with nephrosis begins to have occasional blood cells in the urine or occasional slight elevation of the nonprotein nitrogen level, these conditions will become more persistent and the child will have chronic nephritis with severe renal damage and eventual death. Such a change will usually occur within the first few months of illness. A group of 15 children with severe edematous states associated with kidney disorders were followed by the authors during the past two years. The treatment of edema consisted of the acid-ash regimen, which implies a liberal use of fluids, about 50 cc per pound (0.5 Kg) of body weight daily, and acidification by drugs, such as

ammonium chloride or potassium chloride in glycerolruza syrup. Dilute hydrochloric acid, 5 drops in a glass of water, was given three to four times daily. Acid fruit juices, such as cranberry, plum and prune, were given, since other juices yield an excess of alkaline ash. An acid ash, high protein diet consisted chiefly of meat, chicken, fish, eggs and cereals. Sodium chloride intake was restricted to 1 or 2 Gm daily, which implied eliminating it from cooking. Nephrosis responded to this treatment better than did nephritis, 7 of the patients with chronic nephritis died within one year. Substantial amounts of fluids were cleared from the tissues of 5 patients with nephrosis. Edema usually returned with recurring infections, but it cleared rapidly following control of infection with penicillin or sulfadiazine therapy. Diuretic effect was not seen until eight to twenty days after the regimen was started. The authors believe that control of edema and greater comfort of the patient justify the use of this regimen.

American J Obstetrics and Gynecology, St Louis 59 237-474 (Feb.) 1950 Partial Index

- Radical Panhysterectomy, Pelvic Lymph Node Excision, Total Vagnectomy and Total Cystectomy. One-Stage Operation for Carcinoma of Female Genitals Invading Bladder (Report of 21 Cases) A Brunschwig, M J Jordan and V K Pierce—p 237
*Retrolental Fibroplasia. Hazard of Premature Birth H Speert, I C Blodi and A B Reese—p 246
Value of X Ray Therapy in Amenorrhea and Sterility Associated with Endometrial Hyperplasia S A Wolfe—p 259
*Treatment of Early Carcinoma of Cervix Uteri J A Corsecaden—p 272
*Carcinoma of Cervix (University Hospitals 1926-1942) J H Randall, W C Keettel, H C Willumsen and J W Scott—p 285
Pregnancy and Labor Experiences of Elderly Primigravidae E G Waters and H P Wager—p 296
Major Gynecologic Operations in Patient over 50 Years of Age J C Weed and J R Mighell—p 305
Effect of Adoption on Fertility and Other Reproductive Functions F M Hanson and J Rock—p 311
Emotional Factors in Gynecology F S Rogers—p 321
Psychosomatic Factors in Functional Amenorrhea W S Kroger and S C Freed—p 328
Septic Abortion Kidney J P Wyatt and H Goldenberg—p 337
Study of Native Species of Male Toads as Test Animals in Diagnosis of Early Human Pregnancy P F McCallin and R W Whitehead—p 345
Use of Male Frog (*Rana pipiens*) in Biological Pregnancy Test H L Gardner and N B Harris—p 350
Monozygous and Dizygous Twins in Study of Human Heredity M T Macklin—p 359
Vaginal Hysterectomy and Colpectomy for Prolapse of Uterus and Bladder J T Williams—p 365
Frequency of Rh Anamnestic Reaction During Pregnancy C L Schneider—p 371
Pheochromocytoma Complicating Pregnancy G L Bowen, D J Grandin, E E Julien and S Krech Jr—p 378
Uterine Cervix During Pregnancy E J Murphy and P A Herbut—p 384

Retrolental Fibroplasia and Premature Birth—Speert, Blodi and Reese discuss pathologic changes in the eyes of prematurely born infants. These changes lead to formation of a grayish white connective tissue membrane in the anterior vitreous. Useful vision is impaired and partial or total blindness results in most cases because the disorder is usually bilateral. The descriptive name for this condition is retrolental fibroplasia. The authors investigated 104 pregnancies which resulted in the development of this condition. The incidence of the disorder appears to be increasing. Ninety-six per cent of the affected children were born prematurely. The sexes of the children

were about equally divided. Seventeen of the pregnancies resulted in multiple births, including two sets of triplets. There is a strong indication that both children were affected in all monozygotic pregnancies, while only one was affected in the dizygotic pregnancies. Cutaneous hemangiomas were associated with retrolental fibroplasia in a proportion of cases significantly higher than the expected incidence. Maternal infections and other complications during pregnancy, with the possible exception of rubella, had no etiologic relation to retrolental fibroplasia in the child. Similarly irrelevant were maternal medication during pregnancy and labor, type of delivery, maternal serologic test for syphilis, and her Rh factor. In addition to the obvious role of prematurity, available evidence suggests the probable importance of genetic factors and, occasionally, environmental factors such as maternal rubella. No satisfactory treatment is known for the condition; efforts to reduce its incidence must lie primarily in the prevention of premature birth.

Treatment of Early Carcinoma of the Cervix—Corscaden states that at the Sloane Hospital for Women in New York, the League of Nations Classification of cancers has been employed, except that stage 1 of cervical carcinoma has been subdivided, because it included lesions of varying extent. The use of intracavitary radium combined with external roentgen irradiation has been followed by steadily improving results, reaching in the most recent reports a level of around 70 per cent five year survivals in carcinoma of stage 1 (League of Nations) and of 40 per cent in all cases (absolute). In 149 patients treated in the Sloane Clinic during 1939 to 1943, there was an absolute survival of 43 per cent (46 per cent relative), and of 76 per cent (83 per cent relative, i.e., excluding patients not followed and those dying of intercurrent disease) in stage 1. Radical (Wertheim) hysterectomy was abandoned twenty years ago because of high mortality and a low cure rate. Considerable improvement in results will be necessary before the revived radical operation can be offered as a substitute for intracavitary radium combined with roentgen irradiation. To accomplish this improvement the operation must be performed by surgeons with exceptional operative facilities. Unless the procedure is thorough it will fail as of old. The author believes that the standard treatment of cancer of the cervix is that of intracavitary radium combined with external roentgen therapy.

Carcinoma of Cervix—Randall and associates report on 983 patients with cervical carcinoma treated at the University of Iowa Hospitals from 1926 to 1942. Irradiation was employed almost exclusively, but a few patients were treated surgically. From 1926 to 1931 patients were given one or more applications of radium, followed by short courses of high voltage roentgen therapy. The plan of therapy was changed in 1931 so that a course of high voltage roentgen therapy to the pelvis was given first and was followed immediately or a few weeks later by radium application to the local lesion. Another course of high voltage roentgen therapy was given eight to twelve weeks later if the skin could tolerate it. The present method of treatment was instituted in 1937. It consists of a course of high voltage roentgen radiation to the pelvis through six to eight skin portals. The dosage to each portal at any one treatment is 200 r measured in air. The total dosage varies from 10 000 to 25 000 r (air). The average dosage delivered to the parametrial regions is 3 500 to 4 000 r. Radium is applied locally late in the course of roentgen irradiation or at its conclusion. Two 250 mg tubes of radium screened with 15 mm of platinum and 10 mm of rubber are placed in tandem in the uterine cavity and six 100 mg tubes screened with 15 mm of platinum are placed against the cervix in a brass block. The absolute five year survival rate has been 30.4 per cent. The absolute five year survival rate during the years 1926 to 1937 was 25.7 per cent, but it has increased to 37.0 per cent for the years 1937 to 1942. The most important single factor in end results is the stage of the disease. The histologic character of epidermoid carcinomas has little effect on final results. Patients who are young or senile and those who are febrile or have an inverting type of growth generally respond less to irradiation. Complications are inevitable when irradiation is given to the limits of tolerance. There is a primary mortality of 1 to 2 per cent from irradiation treatment of cervical cancer to the point of tissue tolerance.

American Journal Physiology, Baltimore

160 1-216 (Jan) 1950 Partial Index

- Hemoglobin Iron as Stimulus for Production of Ferritin by Kidney J. K. Hampton Jr. and H. S. Mayerson.—p. 1
Comparison of Effects of Sodium Pentobarbital or Ether Induced Anesthesia on Rate of Flow and Cell Content of Rat Thoracic Duct Lymph. G. F. Hungerford and W. O. Reinhardt.—p. 9
Mechanism of Hypotension Following Intravenous Injections of Strongly Hypertonic Solutions. W. W. Walcott and I. J. Deyrup.—p. 15
Comparison of Protein Anabolic Property of Various Androgens in Castrated Rat. C. D. Kochaian.—p. 53
Effect of Desoxycorticosterone Acetate and Adrenal Cortical Extracts on Survival of Adrenalectomized and Intact Rats After Burning. S. S. You and E. A. Sellers.—p. 83
Mechanism of Extracellular Sodium and Chloride Depletion in Adrenal-ectomized Dog. J. B. Flanagan, A. K. Davis and R. R. Overman.—p. 89
Production of Diabetes in Mouse by Partial Pancreatectomy. F. Pauls and R. W. Bancroft.—p. 103
Effects of Ligation of Pancreatic Duct upon Action of Secretin and Pancreozymin in Rabbits with Correlated Histological Study. C. C. Wang, K. J. Wang and M. I. Grossman.—p. 115
Effect of Temperature upon Survival of Eviscerate Rat. D. J. Ingle and J. E. Nezamis.—p. 122
Oxygen Transport and Utilization in Dogs at Low Body Temperatures. W. G. Bigelow, W. K. Lindsay, R. C. Harrison and others.—p. 125
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Coronary Blood Flow and Cardiac Oxygen Consumption in Unanesthetized Dogs. F. C. Spencer, D. L. Merrill, S. R. Powers and R. J. Bing.—p. 149
Direct Determination of Partial and Total Tensions of Respiratory Gases in Blood. A. Roos and H. Black.—p. 163
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Comparison Between Cardiac Input Measured with Rotameter and Output Determined by Direct Fick Method in Open Chest Dogs. R. A. Huggins, E. L. Smith and M. A. Sinclair.—p. 183
Convulsions in Cerebellum and Cerebrum Induced by Beta Chlorinated Amines. G. H. Pollock and J. A. Bain.—p. 195
Sympatholytic Effects of Quinine and Quinidine. E. P. Hlatte.—p. 212.

American Journal of Psychiatry, New York

106 561-640 (Feb) 1950 Partial Index

- *Thyroid Function in Mental Disease Measured with Radioactive Iodine. I¹³¹. K. M. Bowman, E. R. Miller, M. E. Dailey and others.—p. 561
Characteristics and Screening of Unsatisfactory Psychiatric Attendants and Attendant Applicants. A. S. Kline.—p. 573
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Problems of Institutional Care of the Aged. D. A. Boyd Jr.—p. 616
Psychiatric Medical Education Among Negro Physicians. H. J. Erwin.—p. 624

Thyroid Function in Mental Disease—Bowman and his associates report studies on the thyroid function of patients with mental disease and of controls, as measured by the uptake of the radioactive isotope of iodine (I^{131}) by the thyroid gland and compared with serum protein bound iodine, basal metabolic rate and plasma cholesterol level. These four tests represent the most widely accepted methods for evaluating thyroid function. Data are given on 24 patients and 12 controls. The average basal metabolic rates were somewhat low, the average plasma cholesterol levels somewhat high. The serum protein bound iodines fell within the normal range. The uptake of I^{131} was widely distributed but, except in 1 patient, fell within the normal range. In no case did the uptake curves resemble the types found in myxedema or thyrotoxicosis. No significant difference has been found between patients and controls. The results obtained by the authors differed from those in many reports in the past of low basal metabolic rate in mental patients compared with normal controls and of low plasma cholesterol levels in schizophrenic patients. The authors likewise found no change in thyroid function in patients during or after insulin shock, electroshock, combined shock or psychotherapy. Thyroid medication however produced profound alterations in the results of all 4 tests in the 2 patients on whom study has been completed. There has been insufficient analysis of the rate of I^{131} uptake; the authors have dealt primarily with the maximum concentration of I^{131} accumulated in the thyroid gland after a test dose. Results suggestive of some abnormality have been found in 2 manic-depressive patients. Both patients had a decided drop in their radioactive iodine uptake curve as they improved during electroshock therapy.

American Review of Tuberculosis, New York

61 159-298 (Feb) 1950

- *Streptomycin Promizole Therapy of Miliary and Meningeal Tuberculosis in Children E M Lincoln and T W Kirmse—p 159
- Effect of Streptomycin upon Pathology of Tuberculous Meningitis W J Winter—p 171
- Tuberculous Bronchitis in Pulmonary Resection Incidence in 58 Pulmonary Resections for Tuberculosis M G Buckles and W B Neptune—p 185
- Use of Gelatin Foam (Gelfoam) in Thoracoplasties G A Hedberg, W D Seybold and O T Clagett—p 193
- Studies on Respiratory Gas Exchange in 100 Anthracite Coal Miners with Pulmonary Complaints H L Motley, L P Lang and B Gordon—p 201
- Para Aminosalicilic Acid Treatment of Tuberculosis Review E Bogen, R N Loomis and D W Will—p 226

Streptomycin-Promizole® Therapy of Miliary and Meningeal Tuberculosis in Children—Lincoln and Kirmse treated 13 children between the ages of 3 months and 11 years with miliary tuberculosis and 21 children between the ages of 9 months and 11 years with tuberculous meningitis, with streptomycin combined with promizole® (4,2'-diaminophenyl-5'-thiazolyl sulfone). The patients with miliary tuberculosis were given 1 Gm of streptomycin daily by the intramuscular route for one hundred and twenty days. The sulfone drug was given by mouth four times daily in amounts sufficient to obtain concentrations in the blood of 1 to 3 mg per hundred cubic centimeters. The daily dose varied from 1 to 8 Gm. Patients with tuberculous meningitis were given 1 Gm of streptomycin daily by the intramuscular route in two divided doses. Streptomycin was given intrathecally once daily in 0.1 Gm doses until toxic symptoms or mechanical difficulties arose, the dosage then was reduced to 0.05 Gm daily, or every two days, until a total of forty intrathecal injections was completed. Promizole® was administered in the same manner as for miliary tuberculosis. Eleven patients with miliary tuberculosis and 16 patients with tuberculous meningitis survived. Three patients with meningitis relapsed, 1 of these died. There was little evidence of toxic reactions to the sulfone drug except for cyanosis and slight enlargement of the thyroid. Ataxia was the most constant toxic reaction to streptomycin. Early recognition of tuberculous meningitis and intensive intrathecal therapy are important factors in survival. The location of the lesion, the sensitivity of the micro-organisms and possibly the age of the patient are important in the prognosis. Four of the 5 patients whose deaths resulted from meningitis were less than 14 months of age and in a moderate to far advanced stage of the disease when treatment was started. Combined streptomycin and promizole® therapy appears to have improved the results and is worthy of more extensive clinical trial.

Anesthesiology, New York

11 1-144 (Jan) 1950

- Tissue Distribution with Time After Single Intravenous Administration of Pentothal Sodium (Sodium Ethyl [1 Methylbutyl] and Pentothal Sodium Thiobarbiturate) J L Bollman, L M Brooks, E V Flock and J S Lundy—p 1
- Effect of Dibenamine on Cyclopropane Epinephrine Arrhythmias N R J McMillen, L J Hampton and V A Drill—p 8
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Annals of Surgery, Philadelphia

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Bacitracin in Treatment of Gangrene—Meleney and co-workers treated 5 patients with progressive bacterial synergistic gangrene with bacitracin. Four of the patients had not responded to penicillin therapy. Penicillin was not given to the fifth patient because of a previous allergic response. The patients illustrated the disease from its earliest development, before the occurrence of extensive destruction of skin, to a late stage, in which, after four months, all of the lower abdomen, the flanks and the upper portions of the thighs were involved. The patients exhibited typical clinical symptoms of progressive bacterial synergistic gangrene, which depends on the coincident presence of a Staphylococcus capable of producing gangrene in tissues already inflamed by the nonhemolytic microaerophilic Streptococcus. The essential causative agents were found in 3 of the patients. The microaerophilic nonhemolytic Streptococcus escaped recovery in the remaining 2 patients, probably because of overgrowth by secondary contaminants. All 5 patients responded promptly to bacitracin administered intramuscularly in doses of 10,000 to 24,500 units every six hours. Treatment was continued for 11 to 30 days with a total dose of 1,078,000 to 2,160,000 units. Bacitracin was also used locally in a concentration of 500 to 1,000 units per cubic centimeter, with a total dose of 78,000 to 357,000 units. Surgical excision was obviated in all 5 patients. The defect was restored by the growth of epithelium from the residual islands left in the outward spread of the gangrenous process in 4 patients, and only in the fifth patient was it necessary to use skin grafts. Systemic bacitracin therapy started in a dosage of 400 units per kilogram of body weight every six to eight hours is the treatment of choice for progressive bacterial synergistic gangrene.

Chronic Relapsing Pancreatitis—Richman and Colp report 3 cases of chronic relapsing pancreatitis in 2 men aged 45 and 34 and in 1 woman aged 52. Chronic relapsing pancreatitis represents the sum of repeated attacks of acute pancreatitis resulting from heightened secretory activity, which may be accompanied with obstruction of the pancreatic ducts, leading to an excessive pressure within the ducts and producing either diffusion of the enzyme into the parenchyma or a rupture of the radicles. Alcoholism was a causative factor in the 2 men, and biliary tract disease was present in 1 man and in the woman. All patients had the important disabling features of pancreatitis: pain, diarrhea and dyspepsia. The diagnosis of chronic pancreatitis was made by biopsy of the pancreas in each case. After subtotal gastrectomy of the Bilroth 2 type, 2 patients were relieved of their symptoms. The third patient

obtained relief from pain but experienced pronounced aggravation of his diabetes mellitus, resulting in death in diabetic coma. This corroborates the concept that structural damage to the pancreas is permanent, but the pathologic cycle which will eventually lead to transformation of the pancreas into a calcified functionless mass and to chronic invalidism, is apparently arrested by subtotal gastrectomy. The rationale of this treatment is the lessened production of hydrochloric acid and further neutralization of acid by the regurgitation of the alkaline contents of the duodenum through the gastroenteric stomi. As a result secretin formation is diminished, hence the lessened volume of pancreatic juice does not distend the pancreatic ducts. Pain is thereby relieved. Vagotomy was combined with subtotal gastrectomy in 2 of the patients; it may act to further minimize pancreatic secretion.

Continuous Lumbar Sympathetic Block—Ruben treated 48 patients with various peripheral vascular diseases of the lower extremity with a new method of continuous lumbar sympathetic block. A spinal catheter is inserted 5 to 6 cm into the epidural space through the sacral hiatus. Ten cubic centimeters of 1 per cent procaine hydrochloride are injected through the catheter. The catheter is then connected to a 1000 cc flask of 0.1 per cent procaine hydrochloride in isotonic sodium chloride solution by way of an ordinary intravenous drip infusion set. The continuous block is maintained for as long as seems clinically necessary. Thrombophlebitis requires a minimum of 24 hours, and one patient was treated for 164 hours continuously. The strength of the procaine solution may be increased to 0.3 per cent, 0.5 per cent and even 1 per cent when treatment must be prolonged. Ten of the 48 patients had acute arterial occlusion, 4 had arterial spasm, 7 had chronic arterial occlusion and 27 had thrombophlebitis. In 2 patients with acute arterial occlusion the continuous lumbar sympathetic block seems to have been important in preserving the limb without operation, in many of the other cases the results were better than those obtained with other methods of lumbar sympathetic block. The method requires no elaborate equipment and is safe. It is useful for patients suffering from arterial embolus who, for one reason or another, cannot be subjected to embolectomy.

Archives of Neurology and Psychiatry, Chicago

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- Relation of Migraine to Cerebral Aneurysm. K. Frankel—p. 195
Phenomena of Sensory Suppression. A. R. Furmanski—p. 205
Course and Symptoms of Progressive Infantile Muscular Atrophy. Follow Up Study of 112 Cases in Denmark. S. Brandt—p. 218
Incidence of Psychomotor Epilepsy in Army Psychiatric Consultation Service. R. J. Kahana and R. C. Robertello—p. 229
Mesantoin® in Treatment of Epilepsy. Report on 200 Patients Under Treatment for Periods Ranging from Two Months to Four Years. H. L. Kozol—p. 235
Neurologic Complications Following the Mantoux Test. F. T. Meret—p. 249
Poliomyelitis III. Bulbar Poliomyelitis. Study of Medullary Function. A. B. Baker, H. A. Matzke and J. R. Brown—p. 257
Leptomeningeal Changes Associated with Lipochondrodystrophy (Gargoylism). Report of Case. K. R. Mizee—p. 282
Cytopathology of Brain and Reticuloendothelial Organs in Allergic Encephalitis in Guinea Pigs. B. Campbell and R. A. Good—p. 298
Mesantoin® in Epilepsy—Mesantoin® (3 methyl 5, 5 phenylethylhydantoin) appears to be a valuable addition to the drugs which have been proved effective in the treatment of epilepsy. Kozol has the impression that it is the most effective antiepileptic agent available. Many epileptic patients who had failed to respond satisfactorily to previous medicaments including phenobarbital and diphenylhydantoin sodium responded remarkably to mesantoin®. Kozol reports on 200 epileptic patients treated with this drug for periods ranging from two months to four years. There was an average improvement of 90 per cent as judged by a reduction in the frequency of the seizures and of 75 per cent as judged by an increase in the longest interval between seizures. Even better results were obtained in certain categories of patients. Twelve and one-half per cent of the patients in this series were not helped by the drug. There were wide individual variations in dosage. Some adults could tolerate only 0.3 or 0.4 Gm daily or required only that much for satisfactory control of their seizures, other adults took or required as much as 18 Gm (eighteen tablets daily). No death ascribable to the drug has appeared in this series. Since this

report was submitted for publication, 2 deaths presumably ascribable to this agent have come to the author's attention. One case was that of a fulminating bullous dermatitis with fatal gastrointestinal hemorrhage in a boy 13 years of age who had received less than 2 Gm of mesantoin® in two weeks. The other was that of a woman aged 34 with a history of several suicidal attempts and hospitalizations for a mental disorder who had taken the drug erratically and irregularly, she died of aplastic anemia.

Archives of Otolaryngology, Chicago

51 149-306 (Feb.) 1950

- *Ménière's Syndrome. Observations on Vitamin Deficiency as Causative Factor III. General Disturbance. M. Atkinson—p. 149
Stricture of Esophagus Associated with Operation for Duodenal Ulcer. G. D. Straus—p. 165
Mucocoele of Frontal and Ethmoid Sinuses. Evaluation of Use of Acrylics and Tantalum in Surgical Treatment. S. Kaplan, A. Schwartz and B. F. Metson—p. 172
Thrombosis of Cavernous Sinus. New Evaluation and Report of Case with Recovery. L. K. Elfman—p. 188
Chronic Indurative (Cervical Neuralgic) Headache. R. W. Stevens—p. 196
Mechanics of Nose with Special Reference to Nasopharyngeal Discharge. G. E. Tremble—p. 205
Influence of Electric Punch Card Machines on Human Ear. H. Ribeiro de Almeida—p. 215
Oncoecyte in Nasal Mucous Membrane. Study of Unusual Epithelial Cell. J. G. Schoolman—p. 223
Cranial Chordoma. J. Freeman—p. 237
Fistula Auris Congenita. J. B. Miller and P. M. Moore Jr—p. 245

Ménière's Syndrome and Vitamin Deficiency—Atkinson points out that, although the ear is the presenting organ and is responsible for the classic triad of symptoms characteristic of Ménière's syndrome, some general disturbance is also present. It is for this reason that therapeutic measures directed toward the ear alone such as inflation of the eustachian tube are rarely effective, even in controlling the attacks of vertigo and surgical procedures though they may abolish the acute attacks of vertigo do not restore the patient's hearing or health or control of progress of the disease. Present day medical therapy for this condition, whether directed toward altered water metabolism and electrolyte balance or toward vasospasm by means of nicotinic acid, tacitly admits the fact of this general disturbance. The author presented in a previous communication evidence which points to a deficiency of specific factors of the vitamin B complex as responsible for the vestibular and cochlear manifestations—a deficiency of nicotinic acid in the vasoconstrictor group of cases of riboflavin in the vasodilator group and of a combination of both in the large mixed group while thiamine also plays a general role in determining the integrity of the function of nerve tissue. These three deficiencies can explain also the diverse manifestations of general disturbance associated with Ménière's syndrome. The author classifies the general symptoms according to the different systems involved: the nervous system, eyes, gastrointestinal tract, locomotor system, cardiovascular system and the skin and mucous membranes. He lists the symptoms according to specific deficiencies in nicotinic acid, riboflavin and thiamine. He presents the histories of two patients to show the severe degree of chronic deficiency and consequent general ill health from which many patients suffer, in addition to their aural disturbance and to show the length of time and the high dosage of vitamin preparations required to restore them to a normal state of health. He concludes that these observations form another link in the chain of evidence pointing to Ménière's syndrome as a nutritional disturbance.

Archives of Physical Medicine, Chicago

31 71-120 (Feb.) 1950

- Administration of Physical Medicine Department. Los Angeles County Hospital During 1948. Poliomyelitis Epidemic. E. Austin, O. L. Huddleston and A. G. Bower—p. 71
Mirror for Use on Respirators. E. Austin, O. L. Huddleston, R. Nygren and A. G. Bower—p. 74
Physical Medicine Procedures in Care of Respirator Patients. Measures Used in the Los Angeles County Hospital During 1948. Poliomyelitis Epidemic. E. Austin, O. L. Huddleston and A. G. Bower—p. 76
Relationship Between Body Position and Application of Muscle Power to Movements of Joints. H. H. Clarke, E. C. Elkin, G. M. Martin and K. G. Wakim—p. 81
Objective Recording of Muscle Strength. K. G. Wakim, J. W. Gerritsen, E. C. Elkins and G. M. Martin—p. 90
Practical Foot Problems. I. E. Brown—p. 101

California Medicine, San Francisco

72 79-132 (Feb) 1950

WHAT'S NEW IN PEDIATRICS? A PANEL DISCUSSION

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 Rheumatic Fever R G Shurley—p 85
 Treatment of Erythroblastosis C J Molony—p 89
 Paroxysmal Tachycardia in Infancy E B Levine—p 91
 Fractures and Dislocations of Carpus K Speed—p 93
 *Cancer Detection Centers Experience to Date in California L H Garland—p 99
 Physiologic Basis of Nasal Operations A C Hilding—p 103
 Dihydrogenated Alkaloids of Ergot in Treatment of Peripheral Vascular Diseases R J Popkin—p 108
 Endometriosis W K Lamb—p 113

Cancer Detection Centers—According to Garland 2,479 persons (2,137 women and 342 men) were examined in four cancer detection clinics of California in the course of three years. Not more than 5 cases of cancer were detected in persons without symptoms. All the other cancers detected were in persons with frank tumors in the lip or breast or in persons with symptoms such as bloody vaginal or rectal discharge, who sought free or part-pay diagnosis and treatment. Three of the four centers have been closed because of the small yield of cancer cases plus the fact that the cost of operation exceeded the total available funds of the local branch of the Cancer Society. In addition, it was extremely difficult to obtain and maintain competent professional staff members in such centers. A more practical approach to the problem of earlier tumor detection would appear to be emphasis on making "every physician's office a detection center" and on the annual examination of persons over 40 years of age for tumors in the accessible sites, such as skin, lip, breast and cervix. These are the tumors most readily curable today.

Cincinnati Journal of Medicine

31 1-28 (Jan) 1950

- Drugs Used for Control of Pain R N Bieter—p 1

31 29-56 (Feb) 1950

- Progress in Cancer Research and Control J R. Heller—p 29

Gastroenterology, Baltimore

14 1-200 (Jan) 1950

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 Serum Globulin Fractions as Index of Hepatic Dysfunction M A Spellberg, C Cohn, W Q Wolfson and C Shore—p 11
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 *Needle Biopsy of Liver III Experiences in Differential Diagnosis of Jaundice F G Weisbrod, L Schluff, E A Gall and others—p 56
 Fat Absorption in Young and Old Age G H Becker, J Meyer and H Necheles—p 80
 Life Situations, Emotions and Colonic Function W J Grace, S Wolf and H G Wolff—p 93
 Use of Streptomycin in Gastrointestinal Tuberculosis W R Johnson, R E Moyer and W S Schwartz—p 109
 *Management of Chronic Regional Ileitis E D Kiefer, S F Marshall and M P Brolsma—p 118
 Configuration and Relations of Stomach During Gastroscopy E D Palmer and E L Rea—p 131
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Needle Biopsy of Liver—Weisbrod and co-workers performed needle biopsies of the liver on 157 patients with jaundice, which was due to virus hepatitis in 64, proved extrahepatic obstructive jaundice in 17, probable extrahepatic obstructive jaundice in 13, hepatic cirrhosis in 29, malignant neoplasm of the liver in 16 and miscellaneous causes in 18. Two features of a consistent cytologic pattern varying with the duration of the lesion were evident in all instances of virus hepatitis. These were severe and universal round cell infiltration in the portal zones and focal intralobular necrosis. The polygonal liver cells usually but not invariably were decidedly swollen, becoming balloon-like in the severe forms of hepatitis associated with more than minimal parenchymatous necrosis. Bile stasis was the preeminent lesion noted in biopsy specimens from patients with extrahepatic biliary obstruction. Trapping of bile is the funda-

mental process manifested by the presence of inspissated bile plugs in both intercellular and intracellular canaliculi. Ultimately there was disruption of the minute biliary passages and small pools (or lakes) of bile appeared in the centers of the foci. These "bile lakes" are highly characteristic of severe obstruction. The initial interpretations of the biopsies were erroneous or inconclusive in 9 of the 64 patients with virus hepatitis. The errors, which were most common in patients with mild jaundice or those biopsied in the third or fourth week of jaundice or later, may be attributed to the inconspicuous intralobular lesions and prominent periportal changes which simulate the pericholangitis of obstructive jaundice. Only one error was made in the initial pathologic interpretation of the 17 proved and 13 probable cases of obstructive jaundice. Periportal changes due to pericholangitis plus focal areas of necrosis were erroneously ascribed to hepatitis. The initial biopsy interpretations were correct in all 29 cases of hepatic cirrhosis with jaundice and in 15 of 16 cases of malignant neoplasm of the liver with jaundice. A second biopsy was positive in the sixteenth case. Diagnosis by biopsy was much more reliable than the results of the combined cephalin flocculation test, thymol turbidity and serum alkaline phosphatase determinations in the various forms of jaundice studied. Errors in differentiating virus hepatitis from obstructive jaundice are more apt to occur late in the course of virus hepatitis or in the milder cases of the disease. The structural changes encountered within the first two weeks of obstructive jaundice may be wrongly ascribed to virus hepatitis.

Chronic Regional Ileitis—Kiefer and co-workers report on 159 patients with chronic regional ileitis, 33 of whom were treated medically and 126 surgically. Twenty-four of the 33 patients had localized ileitis and 9 had widespread ileitis. Five of the 24 patients were relieved and remained well from five to eleven years. One additional patient had some partial disability but was improved. Eighteen were unrelieved or had early exacerbation of symptoms, and surgical treatment was advised. Follow-up of the 9 patients with widespread ileitis showed that 4 had been in good health for three to nine years. Two were much improved, although they had some disability. Two patients continued to be invalids, and 1 patient died from the disease. Radical resection of the diseased intestine along with its mesentery and adjacent lymph nodes was preferred rather than exclusion operations such as enteroenterostomy and enterocolostomy. One hundred and two postresection cases were followed over two years. Recurrent ileitis was diagnosed or suspected in 43 and confirmed by laparotomy in 21. The clinical and roentgenologic evidence was so convincing in 13 that the diagnosis of recurrent disease seemed to be unequivocal. "Probable recurrent ileitis" was diagnosed in the remaining 9 cases. Thus the recurrence rate was at least 34 per cent in the patients treated by surgical resection. Medical management should be given a thorough trial in all cases of localized uncomplicated ileitis and in all cases with involvement too extensive to permit surgical resection. In addition to the usual supportive measures medical therapy should include a prolonged period of sanatorium care or its equivalent. Surgical resection is indicated for all cases complicated by obstruction, fistulas, abscesses and granulomatous masses and for cases which prove to be intractable on a medical regimen. The recurrence of the disease in one third of the resected cases indicated that surgical treatment alone is inadequate and that additional measures are necessary. A prolonged postoperative period of medical management, including the newer antibiotics and a rest cure of six months or longer, might reduce the incidence of recurrences. If medical treatment does not control or arrest the disease further surgical treatment may be indicated. The total resected small intestine should not exceed 72 inches (210 cm) as estimated by the surgeon before removal. The condition of the remaining small bowel should be taken into consideration in planning the surgical attack.

Geriatrics, Minneapolis

5 1-54 (Jan-Feb) 1950

- Essentials of Geriatric Examination at 50 C W Crampton—p 1
 Hypertensive Heart Disease in Older Patients G F Greco—p 15
 Anesthesia in the Aging Group W A Weiss—p 26
 Splenectomy in Elderly People A Blaustein—p 30
 Psychology in Everyday Geriatrics R Ginzberg—p 36

Journal of International College of Surgeons, Chicago

13 139-248 (Feb) 1950

- Reversal of Biochemical Processes in Cases of Cochlear and Vestibular Dysfunction S J Kopetzky—p 139
- Surgical Management of Malignant Lesions of Colon C J Hunt—p 172
- Extrapleural Pneumolysis with Methyl Methacrylate (Lucite) Plombage C N Abbott—p 177
- Experimental Studies on Vascularization of Bony Calluses S Teneff—p 186
- Solitary Diverticulitis of Cecum Simple Method of Management. J P Cangelosi and L G Khedroo—p 192
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- Rectosigmoidectomy with Anastomosis in Carcinoma of Rectum and Rectosigmoid R R Best—p 203
- Modified Treatment of Appendical Stump F C Guzman and O J Reyes—p 209
- Androgens in Incurable Breast Cancer T C Davison and A H Letton—p 215
- Facts About Transversalis Fascia Surgeon's Viewpoint S A Zieman—p 224

Journal of Lab and Clinical Medicine, St. Louis

35 167-330 (Feb) 1950

- Protein Alteration in Portal Cirrhosis as Determined by Electrophoresis J F Whitman H R Rossmiller and L A Lewis—p 167
- Systemic and Portal Venous Pressures in Cirrhosis of Liver C S Davidson T B Gibbons and W W Faloon—p 181
- In Vitro Sensitivity of Coliform Bacilli to Seven Antibiotics (Penicillin Streptomycin Bacitracin Polymyxin Aerosporin Aureomycin and Chloromycetin) P F Frank C Wilcox and M Finland—p 188
- In Vitro Sensitivity of Bacillus Proteus and Pseudomonas Aeruginosa to Seven Antibiotics (Penicillin Streptomycin Bacitracin Polymyxin Aerosporin Aureomycin and Chloromycetin) P F Frank C Wilcox and M Finland—p 205
- *Treatment of Pneumococcal Pneumonia with Aureomycin H F Dowling M H Lepper H H Hussey and others—p 215
- Studies on Rheumatic Fever Comparative Value of Weltmann Sero coagulation Reaction and Sedimentation Rate (Cutler) in Determining Activity of Rheumatic Process H G Nelson and J R Seal—p 220
- Influence of Urinary pH on Renal Excretion of Salicyl Derivatives During Aspirin Therapy W S Hoffman and C Noble—p 237
- Comparative Effects of Water Carbonated Water Sodium Chloride Solution and Sodium Bicarbonate Solution on Gastric Acid Secretion in Human Subjects E H Hale A C Ivy and M I Grossman—p 249
- Clinical Study of Use of Nitrogen Mustard Therapy in Polycythemia Vera C L Spurr T R Smith M Block and L O Jacobson—p 252
- Progesterone and Anhydrohydroxyprogesterone Comparative Study of Oral Administration W Bickers—p 265
- Acute Effect of 4 Aminopteroylglutamic Acid on Blood Lymphocytes and Lymphatic Tissue of Intact and Adrenalectomized Mice J H Daugherty and T F Daugherty—p 271
- Artificial Values of Serum Precipitable Iodine E B Man and J P Peters—p 280
- Effects of Pyribenzamine on Respiration of Mouse Brain Homogenates T F Hubbard and L R Goldbaum—p 284
- Cardiac Lesions Following Venous Catheterization of Right Atricle and Coronary Sinus of Dogs W G Banfield D B Hackel and W T Goodale—p 287

Aureomycin in Pneumococcal Pneumonia—Dowling and co workers treated 174 patients with pneumonia with aureomycin. The patients were given either 250 mg of aureomycin by mouth every three hours or 500 mg at six hour intervals until the temperature dropped and remained within normal limits for 48 to 72 hours. The average total dose was 12 Gm. There were 2 deaths among the 131 patients with typed pneumococcal pneumonia and 2 deaths among the 43 patients with pneumonia which was presumably pneumococcal, although no pneumococci were recovered. The fatality rate was lower and the temperature dropped more rapidly in the patients treated with aureomycin than in 686 patients previously treated by the authors with penicillin. Aureomycin is at least as effective as penicillin in pneumococcal pneumonia.

Studies on Rheumatic Fever—Nelson and Seal compared the results of Weltmann serocoagulation reaction and Cutler erythrocyte sedimentation rate with the state of activity of the rheumatic process adjudged clinically in 400 naval patients between the ages of 18 and 25, with or convalescent from rheumatic fever. Of a total of 2,552 observations made on these 400 men the Weltmann reaction was correlated with the clinical status 97.2 per cent of the time, as against a correlation of 86.6 per cent for the Cutler sedimentation rate. Forty-six patients exhibited rheumatic activity during the study and in them the Weltmann reaction was correlated with the clinical status 93 per cent of the time or against a Cutler sedimentation rate correlation

of 90 per cent of the time during periods of activity. The respective correlations during periods of inactivity on these patients were 99 per cent for the Weltmann reaction and 93 per cent for the sedimentation rate. Of a total of 1,857 observations on 350 patients who did not exhibit rheumatic activity the Weltmann reaction was correlated 98.1 per cent of the time and the sedimentation rate 85.9 per cent of the time with the clinical observations. The Cutler sedimentation rate correlation was raised to 92.2 per cent by excluding the 22 patients who had four or more abnormal sedimentation rates. Results for certain patients were significantly important in the greater percentage of discrepancies which occurred in the sedimentation rate. These patients were those who failed to show expected increases of the sedimentation rate during periods of activity and those who exhibited persistently elevated sedimentation rates following the cessation of activity. Similar persistent discrepancies between the Weltmann reaction and the clinical course of the patient were not observed. The Weltmann reaction is of particular value as complimentary to the sedimentation rate in the handling of large numbers of rheumatic patients. It is also of particular value where discrepancies between the sedimentation rate and the clinical course leave the physician undecided as to the state of activity of the rheumatic process in his patient.

Journal of Pediatrics, St. Louis

36 143-270 (Feb) 1950

- *Effect of Inherited Antibodies on Active Immunization of Infants L Greenberg and D S Fleming—p 143
- Health and Growth of Aleut Children E Wilde—p 149
- Use of Phenurone in Treatment of Epilepsy S Livingston and L Kaydi—p 159
- Tonic Neck Reflex and Symmetrotic Behavior Developmental and Clinical Aspects A Gesell and L B Ames—p 165
- Blood Sugar Values in Premature Infants M A Norval—p 177
- Pre Eruptive Neurological Complications of Common Contagious Diseases—Rubella Rubella Roseola and Varicella P B Holliday Jr—p 185
- Urinary Lysozyme III Lysozymuria in Children with Nephrotic Syndrome A T Wilson and W P Hadley—p 199
- Incidence of Congenital Impatency of Nasolacrimal Duct E L Kendig Jr and DuP Guerry III—p 212
- Thrombosis of Renal Vein in Infants C Q McClelland and J P Hughes—p 214
- Table Unit for Fluoroscopic Examination of Infants M M Maliner—p 228
- Congestive Heart Failure in Utero Case Report with Necropsy Findings G E Rader and R D Goodman—p 230
- Friedlander's Pneumonia with Multiple Lung Abscesses Recovery Following Use of Streptomycin and Aureomycin S Gruber R D Turin S D Sternberg and H Rascoff—p 237
- *Potassium Bromate Poisoning Report of Case H F Robertson M W Flothow Jr and M D Kissen—p 241
- Juvenile Thyrotoxicosis Treated with Propyl Thiouracil and Two Subtotal Thyroidectomies L D Altman—p 244

Inherited Antibodies and Immunization of Infants—Until recently it was generally accepted that infants under 6 months of age did not respond well to active immunization, but it is now known that infants as young as 1 month respond well to immunization. Greenberg and Fleming obtained complete records on 105 of 148 children, infants chosen at random from healthy children attending the clinics of the Child Health Association of Montreal. Prior to inoculation the serums were titrated individually for diphtheria antitoxin and when the supply of serum permitted, for tetanus antitoxin and pertussis agglutinins. After the blood sampling each child received a course of three 0.5 cc. injections spaced four weeks apart of an alum precipitated preparation containing diphtheria toxoid, tetanus toxoid and pertussis vaccine. Four weeks after the final inoculation a blood sample was taken and the serums again titrated for the specific antibodies. The authors stress the following points: 1 Active immunization of infants 3 and 4 months of age against diphtheria, whooping cough and tetanus appears to be a sound procedure. 2 The presence of inherited antibody has some effect in depressing the response to diphtheria toxoid but in this series it was not great enough to prevent satisfactory immunization. The average diphtheria antitoxin titer of serums taken after immunization from infants with inherited antibody was 0.51 units per cubic centimeter whereas the average of the group lacking inherited antibody was 0.92 units. Thus satisfactory immunization of infants can be achieved by using highly potent toxoids. 3 Wide variations exist in the immunizing efficiency of available diphtheria and

tetanus toxoids, and the potency of these products should be more strictly controlled. 4 The response to tetanus toxoid was satisfactory. 5 The results of immunization with pertussis vaccine are less certain, because the blood samples were taken before the maximum response was reached. However, 96 per cent of the children did show a response, as indicated by the development of pertussis agglutinins.

Congestive Heart Failure in Utero—Rader and Goodman state that a male infant weighing 4 pounds, 10 ounces (2,098 Gm) was admitted to the Premature Station of the Los Angeles County Hospital three hours after birth. The infant presented at delivery generalized pitting edema involving the scalp, face, trunk and extremities plus massive ascites. Breathing was labored, with moderate cyanosis. An immediate abdominal paracentesis was performed in view of the respiratory and circulatory distress. More than 250 cc of peritoneal fluid were drained, and there was an immediate improvement in the infant's breathing and color. After admission to the Premature Station the infant was placed in a heated bed and given oxygen, vitamin K, penicillin, pharyngeal suction, caffeine and whiffs of spirits of ammonia. His condition remained unchanged for approximately thirty-six hours. He then had recurrent episodes of cyanosis with periods of apnea, and he died after forty-six hours of life. The authors conclude that the clinical and necroptic observations are consistent with congestive heart failure in utero. They believe that when a newborn infant presents a generalized edema, the possibility of congestive heart failure should be considered in addition to erythroblastosis fetalis and other causes.

Potassium Bromate Poisoning with Cold Wave Neutralizer—Robertson and his associates report that a girl aged 14 was hospitalized six hours after she had ingested the neutralizer substance of a cold wave material. She had intermittent attacks of vomiting, persistent hiccup, mild periumbilical pain and oliguria. The psychiatric examination revealed the patient to be of a psychopathic personality type with strong suicidal drives. Emergency treatment consisted of gastric lavage with 2 per cent sodium bicarbonate solution, intravenous methylene blue (1 mg per kilogram of body weight in 1 per cent aqueous solution), and 3 Gm sodium thiosulfate by vein. Because of the acute gastritis, she was given nothing by mouth for the first thirty-six hours, and a satisfactory electrolyte balance was maintained by means of intravenously given saline solution, dextrose and sixth-molar solution of sodium lactate. All symptoms had subsided at the time of discharge, twenty-three days later. A follow-up study six weeks after discharge revealed normal clinical and urinary conditions. The authors point out that several cases of poisoning with this substance were reported in children and stress that this danger from home use of cold wave permanents should be called to the attention of the medical profession.

Kansas Medical Society Journal, Topeka

51 1-48 (Jan) 1950

- Duties of the Future Anesthesiologist J W Pender—p 1
- Care of Hand Injuries Prepared by Committee on Trauma American College of Surgeons—p 4
- Incidence and Titres of Agglutinins for Brucella Abortus and P. Tularensis in Sera of 843 Students N P Sherwood, C M Downs, W R Miller and R I Canuteson—p 6
- Trichinosis Report of Case W M Tate and J A Wheeler—p 11

51 49-100 (Feb) 1950

- *Tropical Disease Infections Among Veterans T T Mackie—p 49
- Duplication of Alimentary Tract Report of Case in Small Intestine G F Helwig and W M Mills—p 54
- Management of Pregnancy in Diabetic Patient T J Sims—p 56
- Hermaphroditism, Case Report C E Robinson and E H Atkin—p 60

Tropical Diseases Among Veterans—Two years' experience in the Tropical Disease Clinic of the Regional Office of the Veterans Administration, Winston-Salem, N C, convinced Mackie that many veterans have handicapping but curable infections. Many draw disability allowances for correctible conditions because of erroneous diagnosis. The essence of the problem lies in the difficulty the individual veteran experiences in obtaining either accurate diagnosis or competent treatment of tropical infections. Too often the clinical symptoms are accepted as evidence of psychoneurosis, because most medical

practitioners in this country are unfamiliar with this group of diseases and technicians in diagnostic laboratories are seldom adequately trained in medical parasitology. The importance of tropical infections among veterans lies in the effects of the chronic infection on the individual and not in any hazard of spread. In the author's experience chronic infections by *Endameba histolytica* constitute the major problem. The solution of the problem for the individual veteran is in the hands of the general practitioner.

Maine Medical Association Journal, Portland

41 1-28 (Jan) 1950

- Care of the Newborn S J Clifford—p 1
- Present Day Treatment of Schizophrenia M Marquardt—p 7
- Present Status of Our Commitment Laws F S Broggi—p 13
- Anesthesia for Cesarean Section P B Thomas and C S Dwyer—p 17
- Problem of Hospital Care for Indigent Patient in Maine F T Hill—p 19

Mental Hygiene, Albany, N Y.

34 1-176 (Jan) 1950 Partial Index

- International Amity Begins at Home J R Rees—p 1
- Normality and Psychosomatic Illness J T McLoughlin—p 19
- Mental Hygiene Aspects of Social Promotion J B Gordon—p 34
- The Community and the Aggressive Child Aggressive-Destructive Impulses in the Sex Offender G E Gardner—p 44
- Experiences in a Prison Camp as Background for Therapy C J Katz—p 90
- Need of New Facilities for Care of Disturbed Children F Clothier—p 97
- Current Trends in Child Guidance Clinics J F Robinson—p 106

New York State Journal of Medicine, New York

50 241-368 (Feb 1) 1950 Partial Index

SYMPOSIUM CONTROL OF PAIN

- Newer Analgesic Methods and Agents of Value in Control of Pain E M Papper and E A Rovenstine—p 281
- Relief of Pain by Surgical Therapy J Browder—p 286
- Program for Prematurely Born Infants in New York City L Baumgartner—p 289
- Modification of Benzidine Occult Blood Test H Elcaness—p 293
- Rational Therapy for Common Colds and Nasosinusitis M Unger—p 295
- *Intravenous Quinidine Therapy for Auricular Flutter Resulting in 1:1 Auricular Flutter and Other Changes H Blinder, J Burstein, W Horwitz and E Gersh—p 298
- Re Emphasis of Auscultatory Method for Ascertaining Size of Liver S H Rinzler—p 300
- Insulating Effect of Mastoid Process on Bone Conduction E M Pullen—p 301
- Simultaneous Occurrence of Plasma Cell Multiple Myeloma and Hodgkin's Disease B B Greenberg, D Stats and M Goldberg—p 305
- *Animal Charcoal as Substitute for Antabuse in Treatment of Alcoholism G L Moench—p 308
- Considerations of Morphology and Metabolism in Malignant Neoplasia M M Black, H Bolker and I S Kleiner—p 309
- Prevention of Massive Necrosis in Acute Hematogenous Osteomyelitis with *Staphylococcus Aureus* Sepsis J Kavec and F S Coleman—p 316
- Metrazol and Electric Stimulation as Diagnostic Aids in Epilepsy T Meltzer and E L Reder—p 319
- Mercurhydrin Administration by Subcutaneous Injection A Koffler and J J Brenner—p 323

Intravenous Use of Quinidine—Blinder and his associates say that during a study of the effects of intravenously given quinidine on a series of normal and abnormal hearts there occurred an interesting alteration of auricular flutter. The administration of 0.65 Gm of quinidine intravenously converted a 2:1 auricular flutter, with an auricular rate of 286 per minute, to a 1:1 auricular flutter with an auricular and ventricular rate of about 195 per minute. There also occurred an intraventricular conduction disturbance, so that the electrocardiographic results could easily be confused with those of ventricular tachycardia. At the time of the conversion to 1:1 auricular flutter in this case and in another case there were alarming symptoms of collapse. These symptoms, occurring five to ten minutes after the administration of quinidine, were probably due to the sudden rapid ventricular rate and the known hypotensive effect of the drug. An identical dose of quinidine administered intramuscularly produced prolongation of the transmission time of the auricles without symptoms of collapse. The authors believe that intravenous administration of quinidine is contraindicated except in emergencies, such as ventricular tachycardia, that do not respond to oral or intramuscular administration of the drug.

Animal Charcoal as Substitute for Antabuse®—Moench says that the description of the symptoms resulting from the use of antabuse® impressed him, because he had noted identical vasomotor symptoms (minus nausea, vomiting and loss of consciousness) when alcohol was taken after previous medication with animal charcoal. He had reported this in 1918 and in 1923. He has verified his observation on volunteers and has repeatedly observed the symptoms on patients who failed to heed warnings against drinking alcoholic beverages when taking animal charcoal. He has also used charcoal in persons with alcoholism without issuing a warning at times with good results. The action of animal charcoal is not immediate. A single dose followed by alcohol never had any effect. Usually medication for two to three days was necessary before the vasomotor effects occurred. Even minimal amounts of alcohol produced the typical reaction. Since antabuse apparently is not entirely innocuous, it may be of value to know that animal charcoal (never wood charcoal) will have exactly the same effect with less danger of toxic manifestations.

Pennsylvania Medical Journal, Harrisburg

53 1-96 (Jan) 1950

- Infections of Newborn and Premature Infant S H Clifford—p 25
The Sex Deviate E L Mayer—p 32
Tuberculosis as Complication of Silicosis C H Marcy—p 39
Carcinoma of Colon and Rectum: Modern Trends in Management J W Simon and A V Casillo—p 41
Tuberculosis in Infants: Report of Two Cases W C McCarthy and J C Henthorne—p 44

Proc Soc Exper Biol & Med, Utica, N Y

73 1-152 (Jan) 1950 Partial Index

- Nutrition of Animal Cells in Tissue Culture I Initial Studies on Synthetic Medium J F Morgan H J Morton and R C Parker—p 1
Vitamin B₁₂ and the Intrinsic Factor D E Wolf T R Wood J Valiant and K Folkers—p 15
Vitamin B₁₂ in Amino Acid Metabolism L W Charkey H W Wilgus, A R Latton and F A Gassner—p 21
Action of Aureomycin and Chloromycetin in Virus of Primary Atypical Pneumonia M D Eaton—p 24
Effect of Choline as Lipotropic Agent in Treatment of Human Coronary Atherosclerosis L M Morrison and W F Gonzales—p 37
Portal Blood in Collateral Veins of Patients with Cirrhosis: Acetylation by Intestine S H Blondheim and H G Kunkel—p 38
Estrogen Inactivation by Liver as Modified by Dietary Protein J W Jailer and L Seaman—p 70
Reduced Absorption of Aureomycin Caused by Aluminum Hydroxide Gel (Amphogel) B A Waisbren and J S Hueckel—p 73
Cultivation of Mengo Encephalomyelitis Virus in Embryonated Hen Egg G W A Dick—p 77
Effect of Desoxycorticosterone Acetate on Insulin Sensitivity in Diabetes Mellitus H J Zimmerman, A E Parrish and L B Alpert—p 81
Production of Hypertension in Rat by Substituting Hypertonic Sodium Chloride Solutions for Drinking Water L A Sapirstein W L Brandt and D R Durr—p 82
Use of Radioactive Phosphorus to Determine Volume of Blood Replaced in Replacement Transfusion R J Soberman J R Krevans and R P Keating—p 87
Insulin Content of Pancreatic Juice W B Neal Jr L R Dragstedt G Rogers and others—p 95
Appearance of Protein Tagged with Radioactive Iodine in Thoracic Duct Lymph H Krieger W D Holden C A Hubay and others—p 124

Choline as Lipotropic Agent in Coronary Atherosclerosis—Morrison and Gonzales inaugurated a study of the lipotropic action of choline in 230 patients in whom acute coronary thrombosis with myocardial infarction was demonstrated by serial electrocardiograms, history, laboratory tests and physical examination. One hundred and fifteen of the patients served as controls. They were followed three years but were not given choline. The other group of 115 patients represented those who were admitted in alternate order to the Los Angeles County General Hospital for their first acute myocardial infarction. They were placed on choline treatment after they were discharged and were followed in the Research Clinic of the Hospital. Fifty-two patients were given choline for one year, 35 for two years and 28 for three years. The dose of choline bicarbonate varied from 6 to 32 Gm. daily. The diet remained the same as that taken by the patients prior to their infarction. Of the 115 control patients 35 (30 per cent) had died after three years. Death in this series was due to recurrent coronary thrombosis with myocardial infarction in 19 cases, congestive heart failure in 10 cases and extracardiac causes in 6 cases.

In the choline-treated series of 115 patients, 14 (12 per cent) had died after three years. Death in this series was due to recurrent coronary thrombosis with myocardial infarction in 6 cases, congestive heart failure in 5 cases and extracardiac causes in 3 cases. The lipotropic agent choline appears to reduce significantly the mortality rate from recurrent coronary thrombosis.

Hypertension Due to Sodium Chloride in Rats—Sapirstein and his associates report three experiments on three groups of rats: adult males, young females and adult females. The animals were divided into control and experimental groups. Blood pressures were determined with the Sobin tail plethysmograph. The experimental animals received sodium chloride solutions from graduated drinking bottles as their sole source of fluid, while control animals received tap water. In experiment 1 sodium chloride concentrations of 15 to 25 per cent were given; in experiment 3, 20 per cent sodium chloride solutions were used throughout; in experiment 2 which was conducted in the hottest part of the summer the animals received 20 per cent sodium chloride through most of the experimental period but refusal of the saline solutions and precipitous weight losses on exceedingly hot days necessitated the substitution of tap water for twenty-four hour periods on several occasions. Blood pressures, body weights and fluid intakes were followed for six weeks after the institution of the hypertonic sodium chloride regimen. At the end of this period the animals were killed and the weights of hearts and kidneys determined. In the animals given hypertonic saline solutions arterial hypertension developed after a latent period of one to four weeks. At autopsy this was found to be associated with hypertrophy of the heart and kidneys.

Public Health Reports, Washington, D C

65 99 130 (Jan 27) 1950

- Statistics on Clinical Services to New Patients in Medical Groups A Cocco G H Hunt and I Altman—p 99
Polyvalent Salmonella H Agglutination as Rapid Screening Test for Salmonella Organisms A A Hajna and S R Damon—p 116

65 131-162 (Feb 3) 1950

- Action of Streptomycin and Lysine Acid on Development of Tuberculosis in Guinea Pigs A Marshak and M Kuschner—p 131
Tuberculosis Facilities and Planning Under Hospital Survey and Construction Act L S Reed and E T Blomquist—p 146

65 163-194 (Feb 10) 1950

- Estimates of Disabling Illness Prevalence in United States Based on February 1949 Current Population Survey T D Woolsey—p 163

Southern Medical Journal, Birmingham, Ala

43 85-180 (Feb) 1950

- *Chloramphenicol in Bacillary Infections of Urinary Tract T K Garvey W A Cline and M Merds—p 85
Office Examination in General Practice J R Bender—p 91
Clinical Aspects of Concomitant Strabismus K B Benkwith—p 97
Acute Abdomen P Thorek—p 101
Modern Trends in Treatment of Pelvic Endometriosis Based on Analysis of 583 Proved Cases C Tyrone and J C Weed—p 107
Relation of Endometrial Hyperplasia to Menstrual Disorders with Remarks on Treatment I E Burch and J C Burch—p 112
Hazards Associated with Chemical Manufacturing J E Williams—p 116
Present and Potential Occupational Cancer Hazards and Carcinogenic Operations in Modern Industry W C Huper—p 118
Virus as Cause of Human and Animal Malignancies J E Gregory—p 124
Geriatric Dermatology C B Kennedy A M Henington R Ro s Jr and R M Hartwell—p 128
Localized Intrarenal Cystic Disease of Kidney C Rier C A Fort and J D Moffett Jr—p 133
Fractures of Patella: Operative Treatment J A Carher—p 138
Intra-medullary Nailing of Fractures of Femur and Other Long Bones C T Berry—p 145
Irosatim L G Lewis—p 151
Hematology in General Practice R R Kracke—p 155
Effects of Acetaldehyde on Perfused Lungs and Coronary Vessels V J Derbes and F A Martin Jr—p 162
Common Form of Fat Dyscrasia Dry Skin F M Pattenger Jr—p 165
Simultaneous Full Term Intra Uterine and Extra Uterine Pregnancies W B Wiener and W N Carpenter—p 168

Chloramphenicol in Bacillary Infections of Urinary Tract—Garvey and his co-workers treated 21 patients (16 female and 5 male) with bacillary urinary tract infections with chloramphenicol. Three patients were given a second course of chloramphenicol after a clinical and bacteriologic relapse had

occurred. Nineteen of the subjects had chronic urinary tract infection with an average duration of 22 months, two others had acute infections of four and seven days. Involvement of one or both kidneys was demonstrated in 18 patients, the majority of these cases were complicated by calculi and/or hydronephrosis. Sixteen subjects had failed to respond to treatment with sulfadiazine, penicillin and streptomycin, previous therapy with aureomycin had been unsuccessful in 2 patients. An initial dose of 2 Gm was given in two and later in four equally divided portions to all patients. A maintenance dose of 0.5 Gm was given at four hour intervals five times daily to patients with infections involving the upper part of the urinary tract, 0.25 Gm five times daily was used in 3 patients with lower urinary tract disease only. The duration of the treatment was limited arbitrarily to seven days. Because of frequent relapse of infection with such a regimen, the length of therapy was later extended to ten or more days. Total doses varied between 10 and 66 Gm. Chloramphenicol proved ineffective in 13 of the 24 cases. Failures were noted where relatively insusceptible organisms were initially present or where they were introduced (5 cases) or developed (4 cases) during treatment. On the whole, toxic symptoms were minor. The authors conclude that chloramphenicol is an effective chemotherapeutic agent for certain gram-negative bacillary infections of the urinary tract. Organisms of the colon-aerogenes group are particularly susceptible to the action of this drug.

Southern Surgeon, Atlanta, Ga

16 1-96 (Jan) 1950

- Clinical Evaluation of Vagotomy in Treatment of Peptic Ulcer M Nordland, C Marshall and M A Nordland—p 2
Multiple Primary Malignant Tumors H C Frech and R B Gottschalk—p 13
Carcinoma of Colon F S Johns—p 17
Significance of Nipple Discharge B T Beasley—p 23

Surgery, Gynecology and Obstetrics, Chicago

90 129-208 (Feb) 1950

- Fracture of Ribs—Logical Treatment F P Coleman and C L Coleman—p 129
Carcinoma of Cervix Statistical Evaluation of 1,938 Cases and Results of Treatment J M Morris and J V Meigs—p 135
*Parenteral Nutrition with Human Serum Albumin as Source of Protein in Early Postoperative Period A G Fletcher Jr, N S Gimbel and C Riegel—p 151
Chloride Output Rate of Human Stomach in Healthy Subjects and Ulcer Patients. Effects of Vagotomy and Acetylcholine Studies by Dye Dilution Technique J R Brooks, J M Erskine T Gephart and others—p 155
Lecithinase and Hyaluronidase in Experimental Intestinal Obstruction C A Tanturi, R E Anderson and J F Canepa—p 171
Surgical Treatment of Constrictive Valvular Disease of Heart H G Smyth, J A Boone and J M Stallworth—p 175
Studies of Development and Nature of Hypertension in Experimental Coarctation of Aorta W C Sealy, W DeMarini and J Harris—p 193
Study of Face Presentation in Normal Mature Fetus B E Tucker M Solomkin and B Abrams—p 199
Experimental Use of Homologous Vein Grafts to Circumvent Pulmonic Valves T J Donovan—p 204
Gas Cysts of Intestines Report of 2 Cases W A Dale and H E Pearce—p 215
*Investigation of 'False Positive' Vaginal Smears R M Graham and J McGraw—p 221
Postoperative Anal Stenosis R Turell—p 231
Esophageal Arteries Anatomic Study of 150 Specimens L L Swigart, R G Siekert W C Hambley and B J Anson—p 234

Parenteral Nutrition with Human Serum Albumin.—The opportunity to evaluate the effects of relatively large amounts of intravenously administered human serum albumin on nitrogen metabolism was provided Fletcher and his associates by the distribution through the American Red Cross of supplies which became available for research studies at the end of the war. Albumin was assayed in 11 patients who were given serum albumin intravenously as the sole source of nitrogen during the immediate postoperative period. The albumin was provided in 100 cc ampules containing 25 Gm albumin and 1.0 Gm of *dl*-acetyltryptophane. It was mixed with dextrose immediately before administration to give 0.2 Gm nitrogen and 25 calories per kilogram of body weight daily, in a volume of 3,000 cc. Salt content was adjusted to the individual need. Patients who had undergone major abdominal operations were started on this regimen the day following operation and continued for five days. Water by mouth and unsweetened tea were permitted when the surgical

condition allowed. The data presented show that 8 of 11 patients were in positive nitrogen balance and 3 were in equilibrium. This was achieved with a considerably lower nitrogen and caloric intake than had previously been necessary when whole or hydrolyzed protein was given orally or intravenously to similar groups of patients during a similar time period.

"False Positive" Vaginal Smears.—Graham and McGraw investigated the "false positive" vaginal smears encountered in the laboratory since 1943. Of the 8 uteri available for study, observations in 4 had been consistent with squamous carcinoma and in 3 with adenocarcinoma, and in 1 case undifferentiated malignant cells were present. The positive smears were not confirmed by pelvic examination, cervical biopsy or curettage, and none of the uteri showed any recognizable malignant tumor when they were opened after surgical removal. Four of the uteri eventually proved to harbor a squamous carcinoma in situ of the cervix. Smears from these patients had been reported positive and "consistent with squamous carcinoma." Four of the uteri failed to reveal any lesion which could be diagnosed as carcinoma. Smears from 3 of these patients had been considered positive and "consistent with adenocarcinoma." The cells in the smears of 1 patient were not sufficiently well differentiated to suggest the type of epithelium from which they were derived. Slides of the 70 "false positive" smears were reviewed. In 62 of these, the positive report had been rendered because of the presence of cells previously thought to be carcinoma but now recognized as histiocytes, basal cells or endocervical cells. In the 8 other cases, the smears still meet the criteria for the diagnosis of malignant growth as used in the authors' laboratory. Of the 8 smears which are still thought to be positive even though unconfirmed, 5 are considered consistent with fairly well differentiated adenocarcinoma. It appears that the smear diagnosis of adenocarcinoma has certain limitations. The incidence of error in smears which are reported positive and consistent with squamous carcinoma is extremely low. False positive reports have been the target of criticism, most of which has little justification. A high incidence of false positive reports is a condemnation of the technic and laboratory which reads the smears. It is not an indictment of the method itself. The method is not foolproof. Inflammation and hyperplasia may result in atypicality of cells which is difficult or impossible to differentiate from neoplasia, and this is particularly true of cells sloughed from the endometrium.

Western J Surg, Obst. & Gynecology, Portland, Ore

58 1-40 (Jan) 1950

- Role of Active Exercise in Pelvic Muscle Physiology E. G. Jones—p 1
*Treatment of Postlumbar Puncture Headache with DHE-45 (Dihydroergotamine) W G Caldwell—p 11
Consideration of Midpelvis Among Factors Which May Influence the Course and Outcome of Labor S A Kaufman—p 14
Effects of Long Continued Administration of Thyroid B Vidgoff and J Stanphier—p 20
Posterior Pituitary Allergy E W Winter and E Edelson—p 24
Myoma of Uterus Associated with Ascites and Hydrothorax P Martinez Esteve and J Ruiz Orrico—p 28
Observations on Childbirth R N Rutherford—p 32

Treatment of Postlumbar Puncture Headache.—Caldwell's study is limited to obstetric patients delivered vaginally under low spinal anesthesia. Headache is the chief untoward reaction following spinal and saddle block anesthesia. Rest in bed in the horizontal position is the best therapy, but in some cases considerable time must elapse before the headache disappears. Caldwell used dihydroergotamine methanesulfonate (DHE 45) in the treatment of postlumbar puncture headache. He studied it in preference to ergotamine tartrate, because there is evidence that it has the same degree of effectiveness as ergotamine tartrate but is considerably less toxic. Of 47 patients treated, 32 obtained complete relief, no relief was obtained in 7, and minimal relief in 3. The drug was administered in three ways: (1) intramuscularly, (2) intravenously or (3) intravenously with the simultaneous intramuscular injection of one ampul (7½ grains, 0.5 Gm) of caffeine and sodium benzoate. The third method proved to be the most efficacious. The only side effects experienced were transient vertigo, light headedness and slight nausea. None of these side effects proved troublesome, and all subsided within thirty to forty minutes.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Cancer, London

3 433-574 (Dec.) 1949 Partial Index

- Statistical Report on 955 Cases of Cancer of Cervix Uteri and 321 Cases of Cancer of Corpus Uteri W L Harnett—p 433
Status of Genetical Studies in Human Cancer J Clemmesen—p 474
Meningeal Tumours with Extracerebral Metastases E Christensen W Kjaer and S Winblad—p 485
Chemically Induced Breast Tumours and Mammary Tumour Agent L Dmochowski and J W Orr—p 520
Development of Malignancy in Experimentally Induced Adenoma of Thyroid W H Hall and F Bielschowsky—p 534
Role of Thyroxine Deficiency in Formation of Experimental Tumours of Thyroid F Bielschowsky—p 547
Effects of Repeated Radiation of Whole Body on Development of Tumours in Rats Due to Feeding p Dimethylaminoazobenzene C Hoch Ligeti—p 562

British Journal of Plastic Surgery, Edinburgh

2 219-294 (Jan) 1950

- Treatment of Recent Burns of Hand W P D Ross—p 233
Treatment of Congenital Absence and Obliterative Conditions of Vagina A McIndoe—p 254
"Gelatimised" Bond for Repair of Skeletal Losses J E Sheehan and W A Swanker—p 268
Pascal's Law as Applied to Skin Grafting H P Pickerill—p 274
Uses of Stomach Tube in Plastic Surgery H J Richards—p 278
Reciprocal Skin Homografts in Medico Legal Case of Familial Identification of Exchanged Identical Twins A McIndoe and A Franceschetti—p 283

Reciprocal Skin Homografts for Identification of Exchanged Identical Twins—McIndoe and Franceschetti state that Bauer in 1927 was first to furnish an experimental test for identical twinning by means of skin homografts. They report a case in which they made use of reciprocal skin homografts for the identification of exchange identical twins. The parents of twins 6 years of age became aware of the existence of another small boy who bore a striking resemblance to one of their own children. Believing first that it was simple coincidence they were surprised to learn that the other child was born the same night and in the same clinic as their own. The cross grafts in the real twin brothers showed in addition to normal skin pattern and texture, persistence of the same direction of hair growth as had been characteristic in their original situations. There was complete survival of all elements of the transplanted skin. On the other hand the grafts between the two supposed twins failed completely and left nothing but an atrophic cicatrix in each case. The similarity in the various morphologic and psychic normal characteristics, the correspondence in certain anomalies and, finally, the experimental evidence of the reciprocal skin homografts left no doubt that the supposed substitution of the twins had actually occurred.

British Journal of Tuberculosis, London

43 93-118 (Oct) 1949

- Therapeutic Rationale in Tuberculous Broncho-Stenosis A Hurst H Laff and G Oguro—p 93
Some Considerations in Postoperative Course of Patients Submitted to Thoracoplasty S J MacHale—p 99
Familial Aspects of Sarcoidosis E R Bickerstaff—p 112

British Medical Journal, London

1 203-262 (Jan 28) 1950

- Production of Hypertension and Hyalinosis by Desoxycortisone H Selye—p 203
Progress of Gastric Surgery in Last Half Century J Walton—p 206
Acute Perforated Peptic Ulcer Study of Recent Fall in Mortality F A Jones P J Parsons and B White—p 211
Perforated Carcinoma of Stomach Simulating Perforated Gastric Ulcer R Doll—p 215
Psoriasis H W Barber—p 219
Seizure Paralysis in Newborn Infants T P Hudson A McCandless and A G O'Malley—p 223
Anaphylactoid Purpura in Pulmonary Tuberculosis P G Dalgleish and B M Ansell—p 225

Production of Hypertension and Hyalinosis by Desoxycortisone—Selye observed that overdosage with desoxycortisone in animals reproduced the experimental equivalent of certain hypertensive, rheumatic and allergic diseases of man—in particular, malignant nephrosclerosis, necrotizing arteritis

similar to periarteritis nodosa, cardiac nodules resembling Aschoff bodies, joint lesions comparable to rheumatic or rheumatoid arthritis, as well as an intense and persistent rise in arterial blood pressure. These changes developed readily after sensitization of animals to these toxic actions of overdosage with desoxycortisone by means of unilateral nephrectomy or a high sodium intake. Essentially the same changes occurred in sensitized animals exposed to noxious agents capable of producing a general-adaptation syndrome with the characteristic stimulation of the adrenal cortex. Since in man these diseases are often preceded by exposure to cold, infections, poisoning or other damaging agents it was assumed that the aforementioned diseases are at least partly caused by an abnormal adaptive response of the adrenal cortex and represent diseases of adaptation. Since it was not definitely proved that desoxycortisone is produced by the adrenals, Selye believed that it would be important for the interpretation of the "diseases of adaptation" to demonstrate that a natural mineral-corticoid agent can also produce them. This has now become possible. The mineral-corticoid with which this investigation is concerned is Reichstein's compound S, or 11-desoxycortisone. It bears nearly the same relationship to cortisone as desoxycortisone to corticosterone. The author was especially interested in determining whether desoxycortisone would produce the diseases of adaptation of the hyalinoid type, because it is so closely related to cortisone, which inhibits the progress of these same diseases. Studies were made on immature male piebald rats. Desoxycortisone (Reichstein's compound S), a steroid normally occurring in the adrenal cortex, proved to be highly active in raising the blood pressure and water turnover. It also caused periarteritis nodosa, acute nephrosclerosis and granulomatous nodules in the heart, accompanied with organic changes similar to those which occur in certain so-called collagen diseases of man. The data are interpreted as further evidence that naturally occurring corticoids may be involved in the pathogenesis of those "diseases of adaptation" which respond favorably to therapy with glucocorticoids or pituitary adrenocorticotrophic hormone (ACTH).

1 263-318 (Feb 4) 1950

- Deaths from Influenza—Statistical and Laboratory Investigation C H Stuart Harris Z Franks and D Tyrrell—p 263
Recent Changes in Death Rate from Influenza W J Martin—p 267
Influenza Study of Two Outbreaks C M Ogilvie R H M Mavor and C Weymes—p 269
Aureomycin in Treatment of Peritonitis C A Bailey and C V Jumeaux—p 271
*Epithelioma and Papilloma Arising on Recently Irradiated Skin Report of 3 Cases J Walter—p 273
Case of Acute Porphyria Q H Gibson D C Harrison and D A D Montgomery—p 275
Acute Idiopathic Porphyria Presenting as Progressive Paresis of Landry Type T D Hart and P Collard—p 278
Convulsions in Childhood G D Read—p 279
Endothelioma of Pleura Report of Case P H Buxton and A Wilcox—p 281
Fracture of First Rib Its Occurrence and Clinical Diagnosis F I Powell—p 282

Epithelioma and Papilloma Arising from Recently Irradiated Skin—Walter points out that hyperkeratosis and epitheliomatous degeneration are well recognized as late complications of chronic radiodermatitis following treatment. These develop on a basis of skin damage such as atrophy, telangiectasia and epidermal thickening, though they may at times be caused by repeated irradiation over several years without obvious skin reaction. The latent interval is usually several or many years. The author reports 2 instances of squamous epithelioma and 1 of papilloma which had appeared on the skin at intervals of seven, eleven and nineteen weeks after completion of radical roentgen therapy with moderately severe skin reactions. The possibility that the lesion could be cutaneous metastases is contraindicated by the fact that the clinical appearances were typical of primary skin tumors. If an early microscopic skin tumor was present before the start of radiotherapy, the dosage given to the skin in each case would be expected either to be curative of such tumor or at least to delay its appearance considerably. The tumors show no changes suggestive of late radiation effects. With regard to the possibility of early radiation effects the author says that a possible explanation might be based on the action of roentgen rays on the

chromosomes. Mutations can be produced experimentally by radiations, and such a mutation in one or more cells due to radiation treatment might be the starting point of a new growth. That the irradiation may have acted as an acute carcinogen is possible but not likely, because latent periods of seven to nineteen weeks are extremely short for human carcinogenesis. Another possibility is the presence of an associated carcinogenic irritant such as a local application to the skin. The only local application used in the reported cases was penicillin cream for periods up to two weeks.

Glasgow Medical Journal

31 1-46 (Jan) 1950

*Management of Persistent Posterior Position of Occiput. T N Macgregor—p 1
Boeck's Sarcoidosis. Report of Case with Lesions Detected in Material Obtained by Sternal Puncture. A C Kennedy—p 10

Management of Persistent Posterior Position of Occiput—The data presented by Macgregor were obtained from the records of the Edinburgh Royal Maternity Hospital and the Royal Infirmary, Edinburgh, during a twenty year period. There were 44,649 vertex deliveries, and of these 3,066 were diagnosed at the beginning of or during labor as posterior positions of the occiput or were delivered as such. The author arrives at the following conclusions with regard to the management of the persistent occipitoposterior position. Each case should be assessed after labor has been in progress for thirty hours and a decision made forthwith as to the method of delivery. When the head is lightly fixed or free above the pelvic brim and the cervix is found to be firm and dilated only 1 to 2 fingerbreadths, delivery by lower segment cesarean section without delay is probably the method of choice. When the cervix is found to be well taken up and more than half dilated, full dilatation should be anticipated up to a period of five hours, and thereafter the head should be rotated and delivery effected by forceps. There is everything to gain from carrying out a manual rotation and forceps delivery at this time. Mother and child are usually in good condition, the rotation is not difficult, and the danger of having to apply high cavity forceps can be overcome by insuring, through fundal or suprapubic pressure, that the rotated head descends well down into the pelvis. The author recommends the prophylactic intravenous use of dextrose and saline solution and chemotherapy in addition to adequate sedation during prolonged labor. When the head is on the pelvic floor labor should be terminated either by forceps delivery face to pubes, after an adequate episiotomy, or by manual rotation and forceps delivery.

Journal Obst & Gynaec of Brit Empire, Manchester

56 949-1146 (Dec) 1949 Partial Index

Displacement of Bladder and Urethra During Labour. P Malpas, T N A Jeffcoat and U M Lister—p 949
Anaesthetist's Contribution to Resuscitation of the Newborn. H Roberts—p 961
Total Hysterectomy and Carcinoma of Cervical Stump. G C Donnelly and W A G Bauld—p 971
Spontaneous Subperitoneal Haemorrhage Complicating Pregnancy. H Roberts—p 976
Cervical Dystocia. H R Arthur—p 983
Urinary Excretion of Amino Acids in Normal and Abnormal Pregnancies. J A McC Smith—p 994
Origin of Amniotic Fluid and Bearing on This Problem of Foetal Urethral Atresia. R E Shaw and H J Marriott—p 1004
Dissecting Aneurysms and "Rupture" of Aorta in Association with Pregnancy. I W Joule—p 1010
Pregnancy Test with Male Toad (*Bufo Viridis*). F G Sulman and E Sulman—p 1014
Rupture of Transverse Uterine Scar After Lower Segment Caesarean Section. R I Lawrence—p 1024
Oxygen Therapy for Newborn. T J C MacDonald—p 1028
Acute Salpingitis During Pregnancy. G G Lennon—p 1035
Cavernous Haemangioma of Perineum. N Alders—p 1038
*Pregnancy Following Pelvic Irradiation. A M Giles—p 1041
Treatment of Postabortal Peritonitis by Surgery. M Schneider—p 1046
Placental Extracts. J A Loraime—p 1051

Pregnancy Following Pelvic Irradiation—Giles reports 2 cases in which attempted sterilization by radium therapy was unsuccessful and in which subsequent pregnancy took place. Both women were 32 years of age at the time of irradiation. The first woman expelled a macerated fetus. The second woman expelled a macerated fetus after forty-four weeks of amenorrhea. Menstruation was regular thereafter, and during

the following year she conceived again. She went into labor at the thirty-sixth week. The labor was prolonged (seventy-one hours) because of rigidity of the cervix and resulted in the delivery of a stillborn child. The author stresses that intra-uterine substerilizing doses of radium irradiation are unjustifiable unless steps are taken to prevent the possibility of subsequent pregnancy. Induction of the menopause by this form of radiotherapy in women below the age of 40 years should be performed only in exceptional circumstances. The amount of irradiation required to effect permanent sterilization varies with age, being less near the menopause and greater in younger women. But even with a relatively high dosage the effect on women under the age of 40 years is uncertain. After a varying period of amenorrhea, menstruation and ovulation may recur. The author cites Murphy, who recorded a low abortion rate, a low stillbirth rate and a low deformity rate. Others, however, have challenged Murphy's statements as unproved. Muller believed that irradiation would produce mutation of genes in the chromosomes of human germ cells, as had been proved in animals. He pointed out that these chromosomes are passed down from generation to generation and that further irradiation in subsequent generations would produce further damage. Physical deformity and change of character could appear in future generations.

Acta Oto-Laryngologica, Stockholm

37 483-568 (Dec) 1949 Partial Index

Otogenic Non Purulent Encephalitis. G V Th Borries—p 483
Chronic Cholesteatomatous and Chronic Cholesterinic Otitis. B Simonetta—p 509
Case of Generalized Lipoidosis of Temporal Bone, Type Hand Schüller-Christian's Disease. J Isingrud—p 516
*Streptomycin in Treatment of Tuberculous Otitis Media. U Surala and E A Lahikainen—p 528
Concurrence of Glaucoma and Ménière's Disease. E Godfredsen—p 533

Streptomycin in Tuberculous Otitis Media—Surala and Lahikainen report on 5 patients with tuberculous otitis media treated with streptomycin. All but 1 of the patients were children. The tuberculous nature of the lesion was verified in all cases by microscopic or bacteriologic studies. Mastoidectomy was done in 3 children, in the fourth child a mastoid fistula was curetted. The adult required a radical mastoid operation. In all patients the operation revealed typical tuberculous bone destruction and granulations and even caseation. A suppurating fistula developed in the scar in 2 patients and did not close until the patients were treated with streptomycin. This also applies to the fistula which appeared spontaneously in 1 case. The daily dose of streptomycin was 0.5 Gm, except for the adult patient who was given 1 or 2 Gm daily during the first few days. The total dose for the children varied from 50 to 95 Gm. The adult patient received much more. Treatment resulted in a dry ear and cicatrization of the wound in the 3 patients subjected to mastoidectomy. The ear subjected to radical operation healed normally. In 2 cases there are reliable data regarding the hearing before and after treatment. Hearing remained unchanged in both. The patients have been followed for a short time only, but it seems unlikely that the tuberculous process will recur.

Archiv fur Dermatologie und Syphilis, Heidelberg

188 423-650 (Nov 30) 1949 Partial Index

Epidermodysplasia Verruciformis of Lewandowsky-Lutz. St Teodorescu, M Fellner and A Conu—p 423
Chemistry and Biology of Surface Fat of Skin. H Lincke—p 453
Telangiectasia Universalis. R Wernsdorfer—p 510
Aspects of Twisted Hairs (Pili Torti). H W Groeger—p 521
Virus Diseases in Dermatology. K Herzberg—p 526
*Jaundice After Treatment with Arsphenamine. W Gennerich—p 567
*Nonspecific Positive Wassermann Reaction at Time of Menstruation and During Premenstrual Period. G Wildführ—p 576

Jaundice After Treatment with Arsphenamine—Gennerich says that there was no instance of jaundice following arsphenamine injection in 2,500 patients from 1910 to 1915 in a navy hospital in Kiel. Even the injection of large doses never resulted in icterus. Instances of arsphenamine jaundice were observed first during the spring of 1916, the incidence and the severity of the cases gradually increased from then to the end of the first world war. He believes that poor nutrition

was largely responsible. In a few cases an infectious origin could not be excluded but, since a meticulous asepsis was observed in the arsphenamine injections, this cause cannot have assumed general importance. Cases of arsphenamine jaundice disappeared with the return of a better nutrition. Arsphenamine jaundice recurred in navy personnel and in civilians during the second world war, but while nutrition was good its incidence was low, corresponding in frequency to that of infectious arsphenamine jaundice during the first world war. Epidemic hepatitis of virus origin was probably the chief cause. Syphilis seems to play no essential role in the patients with jaundice who have received arsphenamine.

Nonspecific Positive Wassermann Reaction During Menstruation—Wildfuhr points out that nonspecific or false positive syphilitic reactions occur in many acute febrile diseases such as mononucleosis, typhus malaria, Plaut Vincent's angina, relapsing fever, trypanosomiasis, typhoid, scarlet fever, leprosy and tuberculosis, and in the presence of certain tumors and following anesthesia which is known to interfere with the lipid metabolism. Pregnancy and menstruation may also result in false positive Wassermann reactions. He cites 12 women between the ages of 17 and 31 who had positive Wassermann reactions during their menstrual periods although they had never been exposed to syphilis and came from families free from syphilis. In some of these women the Kahn reaction was also positive, but usually the Kahn test and the Meinicke clarification II test elicited negative reactions. Since the majority of these women had a family history of allergy or were themselves allergic, it is assumed that the false positive Wassermann reaction was related to the allergic predisposition.

Presse Medicale, Paris

57 1187-1248 (Dec 25) 1949 Partial Index

Role of Partial Pneumothorax in Intrathoracic Suppurations C. Matteri, M. Tristant, A. Barbe and J. Choux—p. 1187

Role of Angiocardiography in Study of Thoracic Tumors A. G. Weiss, C. Schmidt, J. Witz and others—p. 1189

*Revascularization of Extremity by Terminoterminal Arteriovenous Anastomosis L. Leger—p. 1198

Indications for Carotid Cerebral Arteriography R. Roge—p. 1233

Angiocardiography in Study of Thoracic Tumors—

Weiss and co-workers performed angiocardiography on 6 patients with thoracic tumors. The contrast medium was introduced into the external right jugular vein in an amount not exceeding 60 cc. Untoward reactions can be prevented by injection of 5 cc of a 1 per cent solution of procaine hydrochloride and of 20 cc of isotonic sodium chloride solution before the injection of the contrast medium. Six roentgenograms were taken within four seconds. They revealed alterations in the pulmonary artery and its branches with distortions various degrees of compression and obstructions in 2 patients with malignant tumors. Abnormal opacification due to atypical vascularization made it possible to detect an extension of the neoplastic process to the hilus and the mediastinum. Localization of a mediastinal tumor in 2 patients was facilitated by angiocardiography, which revealed displacement or compression of vascular trunks. An aortic aneurysm could be definitely excluded in 1 of these patients. Angiocardiography may aid in the evaluation of pulmonary function.

Revascularization of Extremity by End to End Arteriovenous Anastomosis—Leger performed an end to end arteriovenous anastomosis at Scarpa's triangle in 2 patients, aged 56 and 44, with disturbances of the peripheral arterial circulation. Anastomosis of the superficial femoral artery with the femoral vein, with a Blakemore vitallium tube, was done in the older patient, while silk sutures were employed for the anastomosis of the proximal end of the superficial femoral artery with the peripheral end of the deep femoral vein in the younger patient. Temporary subjective and objective improvement resulted in the older patient, but the anastomosis did not remain patent in spite of the administration of heparin the first three postoperative days. Gangrene of the foot required amputation of the leg eleven months after the anastomosis was performed. Intravenous administration of heparin was carried out for eight days after the intervention and was then continued subcutaneously twice a week in the younger patient. Follow-up for three months showed that the patient

was benefited by the reversal of the circulation. A thrill was heard at Scarpa's triangle, associated with a systolic murmur and terminated by a mild rattle. The patency of the anastomosis was proved by the persistence of both the thrill and the murmur. The integrity of the anastomosis was demonstrated on arteriography. The caliber of the collaterals of the deep femoral artery was definitely superior to that observed before the intervention. Filling of the popliteal vein showed that the effect of the "countercurrent circulation" made itself felt at a distance from the anastomosis. It did not produce any changes in the cardiac dynamics.

Indications for Carotid Cerebral Arteriography—According to Roge, diagnosis of cerebral aneurysms and angiomas can be established only by cerebral angiography. The method is safe and should be practiced whenever aneurysms or angiomas are suspected. It is a guide for the neurosurgeon and an aid in deciding whether surgical intervention should or should not be performed. Arteriography of cerebral tumors should be limited to the cases in which the symptoms suggest vascular tumor (meningioma) and to temporal tumors in which ventriculography is not feasible or its interpretation is difficult because of displacement of the ventricular system. Arteriography is less indicated than ventriculography in cranial trauma. Arteriography should be used in cerebral vascular syndromes more frequently than in the past. It may be helpful in the difficult differential diagnosis of hemorrhage from thrombotic softening. Arteriography will facilitate the decision whether or not surgical intervention should be performed in cases of hemorrhage. Arteriography makes possible treatment with vasodilators in partial or complete thrombosis of the cerebral artery occurring at its termination or, more frequently, at the carotid bifurcation. Improvement resulted frequently from a single injection of an iodized contrast medium into the internal carotid artery in cases of thrombosis. This observation suggests possibilities in prevention or early treatment of cerebral softening by injection of more active pharmacodynamic substances such as nicotinic acid into the carotid artery. Definite improvement of the aphasia, particularly with respect to alexia, was observed within two days after the injection, while pronounced increase of the diameter of the vessel was demonstrated on arteriography ten minutes after the injection. Arteriography may be suggested for diagnosis of a thrombosis in the stage of development in syndromes of "cerebral vascular intermittent claudication," while the injection of vasodilators into the internal carotid artery may be combined with general medical treatment.

Revista Brasileira de Medicina, Rio de Janeiro

6 795-809 (Dec.) 1949 Partial Index

*Lobectomy and Pneumonectomy in Chronic Abscess of Lung F. Paulino—p. 795

Lobectomy and Pneumonectomy in Chronic Abscess of Lung—According to Paulino acute suppuration of the lung secondary to bronchiectasis, tumor or congenital malformation of the lung does not resolve spontaneously. Medical treatment and surgical drainage are of no avail. The disease follows a chronic course of long duration with frequent recurrences and bouts of chronic pneumonitis and pyosclerosis. The condition requires lobectomy or pneumonectomy. Of 3 adult patients with chronic abscess of the lung 2 recovered after lobectomy and 1 after pneumonectomy. The pulmonary symptoms were permanently controlled in all 3 cases.

Revista Clínica Española, Madrid

36 1-62 (Jan 15) 1950 Partial Index

*Experimental Nephritis from Nephrotoxic Serum (Masugi's Nephritis) E. Roda, C. Jiménez Díaz and J. M. Linazasoro—p. 9

*Meningiomas of Pontocerebellar Region with Symptoms of Multiple Sclerosis I. de Gispert—p. 29

Masugi's Nephritis—Roda and collaborators experimented with rats and rabbits with nephritis induced by injection of a specific nephrotoxic serum. A mild course was observed, with apparent recovery in one or two weeks. Renal insufficiency did not develop in any of the animals. The renal lesions of the sacrificed animals showed a long severe, progressive process. The pathologic changes were diffuse in the kidneys of animals

which were given two injections. The renal lesions here exhibited two stages of progression, as if they had developed in two bouts of the disease. The main renal lesion consisted of an interstitial reaction of the glomerular mesenchyma with consequent glomerular sclerosis, changes in the permeability of the capillaries, involution of the glomeruli and degeneration and regeneration of the tubular epithelium. The quantity of protein in the nephritic kidney was twice that of the normal kidney. The authors believe that the increased quantity of proteins in the kidney shows a specific renal precipitation of the blood proteins by blood antibodies. Protein precipitation is the cause of the renal lesion and its progressive course. The experiments suggest a possible primary renal mesenchymal lesion as the cause of chronic nephritis in human beings.

Meningioma Simulating Multiple Sclerosis—De Gispert states that the neurologic symptoms of tumors of the cerebello-pontine angle are frequently similar to those of multiple sclerosis. In the 3 cases of meningioma of the cerebellopontine angle reported by the author, the patients did not show symptoms of intracranial hypertension. One of the patients had papillary stasis in an advanced stage, and another complained of headache during effort. The differential diagnosis of tumor of the cerebellopontine angle was made by the course of the disease, with accentuation of the unilateral cerebellar symptoms, the albuminocytologic dissociation of the cerebrospinal fluid, diminution of the left corneal reflex and, mainly, by the typical roentgen picture of the head taken in the Stenvers, the Towne-Twining and the Schuller's positions. The roentgenograms showed changes in the petrous bone and in the outline of the internal auditory canal, characteristic of meningioma of the cerebellopontine angle. The roentgen diagnosis was confirmed at operation. The microscopic examination revealed a typical meningioma in 2 patients and a pseudoepithelial lobular meningioma in the third.

Schweizerische medizinische Wochenschrift, Basel

80 25-48 (Jan 14) 1950 Partial Index

Pachyderma Plicata with Hypertrophic Pachydermatosis (Pachydermatosis derma) Their Occurrence in Patients with Bronchopulmonary Carcinoma. M. R. Caster, E. S. Mazzei and F. Schaposnik—p. 25

Pathogenesis and Therapy of Vasomotor Headache with Dihydroergota mine (Ergot Derivative) P. Hofmann—p. 28

Ambulatory Treatment of Phlebitis K. Sigg—p. 33

Ambulatory Treatment of Phlebitis—Sigg considers compression bandages and administration of anticoagulants as the best method of therapy and prophylaxis for phlebitis and deep thromboembolism. The compression bandage must be applied with the patient in bed. The bandage stimulates the venous circulation and prevents stasis in the lower extremities, particularly in the leg, where 90 per cent of all thromboemboli have their origin. Severe deep phlebitis may be prevented by this treatment when used prophylactically. Thirty-seven to 79 per cent of all patients with phlebitis will be affected at a later date by indolent ulcers of the leg, and the remaining patients will present other sequelae of phlebitis, such as edema of the leg, eczema, varices, varicophlebitis and spasms. Ninety-five per cent of all these patients may, therefore, be considered as partial invalids. The prophylactic effect of the compression bandage is particularly important because prophylactic treatment with anticoagulants cannot be practiced in the majority of the cases. Compression bandages may be applied after the occurrence of thromboembolism (phlegmasia alba dolens). Recovery time may be shortened considerably by combined treatment with anticoagulants and compression bandage.

Semana Médica, Buenos Aires

56 1079-1100 (Dec 15) 1949 Partial Index

Porphyria of Central Nervous System D. Brage—p. 1091

Nervous Porphyria—Brage says that the course of porphyria with involvement of the central nervous system may be similar to that of a neuroviral infection. The acute attack is due to a latent disorder of the metabolism of porphyria pigments of infectious origin, which becomes active under the effect of certain drugs, the disease is not necessarily hereditary. A 34 year old woman had acute hallucinations and ascending paralysis, of the type caused by a neuroviral infection, shortly

after an arsphenamine injection. The cerebrospinal fluid was normal. Porphyrin was found in the blood plasma and in the urine. Blood transfusion and administration of leukotropin aggravated the symptoms and the neurologic signs and increased elimination of porphyrin. The pathologic alterations in the central nervous system were those of depositions of porphyrin in the subcortical zone, microglar reaction and demyelination. There was vacuolization in the anterior horn cells. Minimal amounts of porphyrin pigments were present in the viscera. The cultures of lisates of the viscera and of body secretions with successive passages gave negative results for a neurovirus infection. There was no history of porphyria in the family.

Wiener klinische Wochenschrift, Vienna

62 1-20 (Jan 6) 1950 Partial Index

Clinical Aspects and Therapy of Lung Tumors W. Denk—p. 2

***Implantation of Anterior Pituitary Lobe to Achieve Compound E (11-dehydro-17-hydroxycorticosterone) Effect on Rheumatic Conditions of Joints** K. Fellingner—p. 9

New Observations on Arteritis of Extremities—A. Lemaire—p. 11

Anterior Pituitary Lobe Implantation for Rheumatic Conditions—Fellinger treated 23 patients with primary and secondary chronic polyarthritis with 62 implantations of 139 anterior pituitary lobes. The anterior pituitary lobes taken from animals just slaughtered were immersed in liquid air, thus achieving an immediate stoppage of all cellular changes and complete preservation of the hormones. One or two anterior pituitary lobes were used for one deep subcutaneous implantation in the abdomen or thigh with local anesthesia. Temporary improvement consisted of less stiffness of joints, disappearance of pain and euphoria occurring within two to three hours after the implantation, lasting six to eight days. A rapid drop in eosinophils, normalization of the erythrocyte sedimentation rate, mildly increased excretion of urates in the urine and a mild increase of ketosteroids followed the clinical improvement within the next few days. The duration of the improvement was much shorter, frequently a few hours, in old patients with arthritis deformans. Repeated implantations produced the same improvement as the first implantation. Allergic reactions were not observed. Treatment failed in 4 patients, among them 1 young woman with severe primary chronic polyarthritis deformans, possibly of tuberculous origin. The therapeutic effect obtained with the implantation of anterior pituitary lobes was thus similar to that obtained with cortisone, which, too, is effective only for the duration of its administration.

Zentralblatt für Chirurgie, Leipzig

74 225-336 (No 3) 1949 Partial Index

***Severe Transthoracic Impalement Injury on Iron Pipe with Involvement of Mediastinum and Opening of Both Pleural Cavities. Recovery Without Complications** W. Schmitt—p. 225

Experience with Early After Amputation Following Injuries of Extremities G. Weber—p. 239

***Anthraxomatus Giant Cell Tumors with Infiltrating Growth in Tendon Sheath** W. Keusenhoff and V. Haenselt—p. 244

***Primary Carcinoma of Nails** J. Bayer—p. 253

Transthoracic Impalement Injury with Recovery—Schmitt reports the case of a boy who fell and was impaled on a tube 19 mm in diameter. The point of the tube entered the thorax at the eighth intercostal space on the right side in the anterior axillary line and emerged at the left side of the neck, behind the sternocleidomastoid muscle. The tube was anchored in the ground, and the physician who was called administered anesthesia and removed the boy from the tube. The boy had hemothorax and pneumothorax, but no major vessel or nerve had been injured. Exploratory laparotomy was performed to exclude abdominal injuries, the entrance and exit wounds resulting from the impalement were inspected and closed, and the boy recovered.

Carcinoma of Nails—Bayer presents the histories of 2 patients, aged 71 and 72, in whom carcinoma developed in a previously apparently normal nail. First there was a blue spot, then superficial ulceration developed. Retardation of healing after removal of the nail led to biopsy, which disclosed the true nature of the lesion. Review of the literature revealed 19 similar cases. The possibility of carcinoma should be considered in cases of subungual lesions that show no tendency to heal even after the nail has been removed.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated

Electrocardiography Fundamentals and Clinical Application By Louis Wolff MD Visiting Physician Consultant in Cardiology and Chief of the Electrocardiographic Laboratory Beth Israel Hospital Boston Mass Cloth \$4.50 Pp 147 with 110 Illustrations W B Saunders Company 218 W Washington Sq Philadelphia 5 7 Grape St Shaftesbury Ave London WC2 19.0

Although innumerable books on electrocardiography are available, there nevertheless exists a need for a book for beginners which emphasizes the basic principles on which this subject rests rather than mere memorization of patterns. It was with such a need in mind that the author undertook the writing of this small volume. The book is divided into two sections. The first deals with the basic principles of electrocardiography and the second with their clinical application. The straightforward lucid style employed in the first section of this book will enable the beginner to obtain a feeling of easy familiarity with material that usually is not readily assimilated. The author in this section has ignored no important fundamental concept and yet has avoided losing the reader in a maze of confusing detail. Unfortunately, this style is not retained in the second part of the book, where the author is compelled to deal with the subject matter in a more empiric manner.

There are numerous statements to which most workers in the field will take exception, most of them are of minor importance. They do not however detract from the usefulness and merit of the book.

The concept of an earlier arrival of the impulse at the surfaces of the right ventricle is retained although this has been demonstrated conclusively to be incorrect. The term hypertrophy is used to describe patterns of heart strain. It would appear that the latter term is preferable. It has been shown that after sympathectomy for hypertension the electrocardiographic pattern of left side of the heart strain frequently disappears more rapidly than would seem possible if hypertrophy alone were the basis for this pattern. The erroneous term arborization block has been retained. The rather confusing statement is made at one point in the book that bundle branch block and hypertrophy are not always the cause of QRS prolongation—it is sometimes due to depression of intraventricular conduction. The author attributes an organic or functional lesion in the bundle branches to each pattern of bundle branch system block. For this reason, he insists on the absence of Q waves from the left side of the heart in left bundle branch system block and attributes their presence in every instance to septal disease. Not many will agree with the statement that S-T and T changes are more reliable signs of infarction than QRS changes or that Q waves in right-sided chest leads in the presence of right bundle branch system block and infarct are due to epicardial negativity.

These misconceptions are not serious certainly not for the beginner. It is obvious that the author has done a commendable job in writing a book designed for the novice in the field.

Die Bazillenruhr Von Ludwig Roemheld Dozent für Innere Medizin. Paper Price 10.80 marks \$3.25 Pp 125 Georg Thieme Verlag Stuttgart 47 Stuttgart O Imported by Grune & Stratton 381 4th Ave New York 16 1949

This monograph on bacillary dysentery is based on the author's personal experience in World War II and is supplemented by several hundred references almost exclusively from the German literature. The paper was concluded in 1944 (only a few more recent references have been added) and deals with pathogenesis, clinical manifestations, bacteriology, epidemiology, immunization, pathology, differential diagnosis, treatment and prognosis, with emphasis on clinical aspects and treatment.

In the chapter on general pathogenesis, the author briefly discusses the pertinent geographic and climatic factors, individual constitutional and psychosomatic problems, hygienic

conditions, water and food sewage disposal and problems of mass infection as well as the theory of the action of dysentery toxins. The largest part of the book is occupied with the protean clinical signs of dysentery, illustrated by cases the validity of which is somewhat dubious because of the absence of etiologic diagnosis. The main enteric and parenteral signs are presented. Circulatory and hematologic problems connected with dysentery, questions of the salt, water and protein equilibrium, loss of weight, edema, dehydration, cachexia, disturbances of skin and central nervous system are discussed, as well as its course, severity, duration relapses, chronicity, complications, mixed and secondary infections and late manifestations as in Reiter's syndrome. The death rate is given as 0.4 per cent in 1941 and 2.3 per cent in 1942.

In contrast to the detailed clinical account, the chapters on serology, vaccination, epidemiology, pathology and differential diagnosis are brief and inadequate. This is particularly true of the bacteriologic part. As causative agents, he enumerates Shiga, Schmitz, Y, Strong, Sonne and Flexner organisms. No attempt is made to corroborate the clinical material of this book with the bacteriologic findings. In 1941 no bacteriologic examinations were done, in 1942, in 67 out of 72 bacteriologic examinations of "clinical" dysentery cases results were negative.

The treatment of bacillary dysentery is discussed in greater detail. The author has stressed the necessity for adequate prophylaxis and early care in even mild cases. Bedrest, warmth, adequate diet and spasmolytics are important, but in no circumstances should the patient receive opiates. In severe cases the water, mineral and protein balance must be watched and maintained. Phage and serum treatment are disclaimed, with the possible exception of the use of monovalent Shiga serum in suitable cases of Shiga infections. Various sulfonamides are strongly recommended as effective. The prognosis depends on the severity of the individual case and on early and adequate treatment. It is poor in chronic cases with anatomic enteric changes. It is stressed that complete cure should be acknowledged only after a dysentery patient has been found permanently free from signs under conditions of normal activity and normal diet.

The book will be of moderate interest to the gastroenterologist but is too diffuse to be of value for the practitioner or the scientific worker.

Accessory Bones of the Human Foot. A Radiological Histoembryological Comparative Anatomical and Genetic Study By Dyrre Trolle. Translated from the Danish by Ellsabeth Aagesen. Denne afhandling et af det lægevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad København 1947. Paper Pp 272 with 127 illustrations. Einar Munksgaard Vejregade 6 Copenhagen K 1948.

An extensive and comprehensive monograph on the radiologic histoembryologic, comparative anatomic and genetic study of the accessory bones of the human foot. It is composed of a short introduction, four chapters, summary and conclusions. The main purpose of this volume, according to the author is to test previous histoembryologic findings to see whether bones preformed in hyaline cartilage do exist, and to attempt to corroborate the phylogenesis as well as other possibilities of origin of these bones. This task the author has accomplished magnificently.

The first chapter contains drawings of the bones of the foot showing the sites of the accessory bones discussed, some 35 in number. Following this is an incidence table with percentage indications including other investigators data to the present plus the author's data, which are based on the examination of 250 pairs of feet. The remainder of this chapter is given to brief descriptions of the individual accessory bones, which are illustrated by sketches and radiographs.

In chapter 2 the author sets forth his own histoembryologic observations. The ages of the subjects were based on the menstruation age calculated with Streeter's curves, and the observations were made from serial sections of the individual feet. From all the data the author finds 11 of the 35 considered as independent cartilaginous elements. Of these, 10 per cent are exclusively in and about the tarsus, more than 45 per cent about the metatarsophalangeal and the interphalangeal joints and more than 22 per cent of both categories.

Chapter 3 contains a summary of the data accrued to date of all the various investigators who have used histoembryologic methods in human and/or animal embryos. In chapter 4 is a lengthy discussion of the genesis of these accessory bones. The summary sets forth, on a chapter basis, the major conclusions reached by the author from his own work and the work of others. This volume will be of interest to the anthropologist, radiologist and to the medicolegalist as a most useful reference work.

Bentley's Text Book of Pharmaceutics Revised by Harold Davis B Sc, Ph D, Ph C, with the Collaboration of M W Partridge B Pharm, B Sc, Ph D, and A I Robinson, Ph C With Contributions by W A Broom, B Sc, FRIC, M Ellis M Sc FLS, and H A Turner B Sc Ph C DBA Fifth edition Cloth \$7.50 Pp 1100 with 307 illustrations Williams & Wilkins Company, Mt Royal & Guilford Aves Baltimore 2 1949

The first edition of this textbook was published in 1926. The new edition follows the design of the earlier editions, but where necessary it has been completely revised and rewritten. It presents the conventional type of information which has long been used in introductory courses in pharmacy, but it does this in an unusually clear and concise manner. Part I includes a brief history of the British Pharmacopoeia, and part II is devoted to general principles involved and the apparatus and methods employed in small scale pharmaceutical operations. Part II is followed successively by sections on pharmaceutical manufacturing, dispensing, microbiology, surgical dressings, sutures and ligatures and pharmaceutical preparations.

The book is written from the viewpoint of the needs of British pharmacy students and pharmacists which, in several respects, are different from those in the United States. However, since basic principles are common to all, the book may be advantageously used for supplementary reading by American students and practitioners of pharmacy and others interested in the subjects covered. The text is correlated with the 1948 British Pharmacopoeia and with the British Pharmaceutical Codex. Many of the drugs listed in these two compendiums are identical with or comparable to those of the United States Pharmacopoeia and the National Formulary. Thus in many instances much of the explanatory and interpretative material applies equally in this country and in countries where the British Pharmacopoeia and British Pharmaceutical Codex are official. The book is documented with a limited number of significant references and includes a satisfactory index. The printing and binding are of good quality.

Applied Psychoanalysis Selected Objectives of Psychotherapy By Felix Deutsch, M.D. Cloth Price \$3.75 Pp 244 Grune & Stratton, Inc 381 4th Ave, New York 16, 1949

The author describes a short intensive method of psychotherapy which has been developed in the search for short methods of applying analytic techniques. The method described is "sector analysis," wherein an attempt is made to bring to light the unconscious determinants underlying the most prominent presenting word symbols of the patient as they are observed in the first or early interviews.

Case illustrations are supplied, wherein the therapist, by repetition of words chosen as symbols of the underlying conflict, keeps the patient concentrating on the particular psychic sector that relates to conscious presenting symptoms. The author discusses the material presented by the patient throughout the course of case illustrations, pointing out indications of developing transference and word bridges between the present and the past.

Data relating to treatment results of this method for large numbers of cases are not provided. The volume should be of interest to psychiatrists engaged in the development of useful methods of short term psychotherapy.

Acute Appendicitis and Its Complications By Frederick Fitzhugh Boyce M.D. Assistant Professor of Clinical Surgery Tulane University of Louisiana School of Medicine Cloth \$8.75 Pp 487 with 11 illustrations Oxford University Press 114 Fifth Ave New York 11 1949

The author, an assistant professor of clinical surgery in Tulane University, justifies his publication by the estimated 5,153 deaths from appendicitis in the United States in 1947, due largely, he believes, to procrastination, purgation and an unwarranted dependence on chemotherapy and antibiotics. As a basis, he has analyzed the case histories of 6,441 patients treated for acute appendicitis at the Charity Hospital, New Orleans. In this series there were 320 deaths. The history of appendicitis, its etiology, diagnosis, treatment, special types and the relation of age, pregnancy and trauma are carefully considered, with many illustrative case reports and pertinent excerpts from the literature. While accepting recurrent appendicitis, the author apparently follows the debatable opinion of Hertzler and Boyd on the nonexistence of chronic appendicitis as an entity.

For the most part, the treatment in relation to the operation and preoperative and postoperative care is modern and well presented. Many will agree that sulfonamides should not be placed in the peritoneal cavity. Some will not agree that cotton, silk or silver wire are the best suture materials for a contaminated abdominal wound or that a triple occlusion with two purse-string sutures is preferable to a simple ligation of the appendiceal stump. The old opinion that the general peritoneal cavity can be drained is quoted, and the present use of non-irritating aspiration drains to the exclusion of adhesion-producing gauze packs, rubber tubes and cigaret drains is not included. Appendicitis is a common cause of perinephritic abscess, and in draining the abscess the appendix should be exposed through the lumbar incision. While this relationship is not discussed, a death from the unremoved appendix is reported. With these few exceptions the book is unusually thorough and modern and is recommended to those who desire a broad knowledge of this important subject.

Malariaology A Comprehensive Survey of All Aspects of This Group of Diseases from A Global Standpoint. By sixty-five contributors Edited by Mark F Boyd Volumes I & II Cloth \$35 per set Pp 1768 788-1643, with 436 illustrations W B Saunders Company, 218 W Washington Sq Philadelphia 5, 7 Grape St Shaftesbury Ave, London W C 2 1949

The editor of this reference work has been a malarialogist for more than a score of years and is well qualified for his difficult task. He has obtained the cooperation of American and foreign contributors, including 12 from Great Britain, 2 each from Brazil and the USSR and 1 each from Australia, East Africa, France, India, Italy, Panama, South Africa and Venezuela. No aspects of malarialogy and no malarious areas of the world have been omitted from consideration. In fact, few medical reference books on a given disease have had better balance.

The 70 chapters of this authoritative and comprehensive survey of malarialogy include history, parasitology, entomology, epidemiology, pathology, clinical aspects, control and therapeutic malaria. Most standard techniques for dealing with plasmodia, Anopheles mosquitoes, malaria surveys, larvicides, magocides, ditching and other control measures are included, and the text is illustrated by over 400 figures. There appear to be no more than what might be judged an average number of inaccuracies, and none is serious enough to be detailed in this brief review.

The editor has maintained ably a readable style throughout, yet the quality of individual contributions naturally varies. In particular, one must note that the chapter (48) dealing with treatment of patent infections is disappointing. For example, it makes no reference to such standard drugs as chloroquine diphosphate and chlorguanide hydrochloride or to the combined use of quinine and an 8-aminoquinoline. These antimalarials have some theoretical consideration in an earlier chapter (46), but little attention is paid to the literature since 1946. By way of contrast, the accounts of clinical signs and symptoms and of the relationship between the clinical course of the several malarias and the underlying parasitology are unusually good. So, too, the various chapters on the natural history, taxonomy and classification of anopheline mosquitoes are excellent. Indeed,

the general quality is above average, and the work as a whole constitutes a veritable mine of useful data.

There are no colored plates of the plasmodia such as one would expect in a reference book on malaria. Several pages are devoted to microphotographs of the parasites, but these seem merely to emphasize the lack of good plates in color. However, the format, type and illustrations are good. There are numerous bibliographic references, and the index is unusually complete. This new treatise on malaria is undoubtedly the best so far in any language and will be a standard reference work. It should have a place in every medical library of importance.

Outlines of Biochemistry By Ross Alken Cortner. Edited by Ross Alken Cortner Jr. Professor of Biochemistry, Wesleyan University, Middletown, Conn. and Willis Alway Cortner, Head, Department of Chemistry, Pineapple Research Institute, Honolulu, T. H. Third edition. Cloth. Price \$7.50. Pp. 1048 with 125 illustrations. John Wiley & Sons, Inc. 440 4th Ave. New York 16. Chapman & Hall Ltd. 37-39 Essex St. Strand, London W.C. - 1949.

This revision as was true of the earlier editions, deals primarily with the pure chemistry of biologic materials, relatively brief summaries are made of the physiologic aspects of these substances.

Section I covers the principles of colloids with emphasis on those principles necessary for an understanding of biologic processes. These first 276 pages are an excellent elementary text on colloid chemistry. Section II deals with proteins. The structure, analysis, chemistry, physical chemistry and metabolism of proteins and amino acids are discussed. The last chapter in this section is a brief discussion of alkaloids and other miscellaneous nitrogen-containing compounds. Section III offers discussions on carbohydrates and related substances. This section covers carbohydrates, glycosides, saponins, pectins, lignin and tannins. A new chapter on carbohydrate metabolism has been added to this edition. Section IV discusses simple and compound lipids and essential oils. A new chapter on lipid metabolism has been added to this edition. Section V deals with plant pigments including chlorophyll and the carotenoids, flavones, xanthenes and anthocyanins. Section VI discusses biochemical regulators including vitamins, hormones and enzymes.

There are many references throughout the book. The literature seems well covered in most sections to about 1946, the biologic regulator section has many references as recent as 1948.

A Text Book of Pharmacognosy By George Edward Trease, B. Pharm., Ph.C., F.R.I.C., F.L.S., Reader in Pharmacognosy and Head of the Department of Pharmacy in the University of Nottingham. Revised with the Assistance of H. O. Meek, Ph.C., H. F. Street, B.Sc., Ph.D., Ph.C., and E. O'F. Walsh, B.Sc., Ph.D., A.R.I.C. Fifth edition. Cloth. \$8. Pp. 811 with 286 illustrations. Williams & Wilkins Company, 415 Royal & Guilford Aves., Baltimore 2. 1949.

This textbook, compiled by a well known English pharmacognosist, contains a variety of information dealing with many phases of the science of pharmacognosy. Its subject matter is divided into five parts, a glossary and an index. Part I contains chapters on the history of the science, London commerce in crude drugs, enzymes in vegetable drugs, the cultivation of medicinal plants, the collection, drying and storage of drugs, and insects and other pests in drugs. Part II deals with drugs of vegetable origin and part III with drugs of animal origin. The two most widely used and most scientific systems of classification are discussed. The author has chosen wisely the taxonomic or phylogenetic system of classification for the more detailed treatment of the drugs which are grouped under their respective phyla in the two kingdoms. Part IV, Chemistry, contains chapters on drug constituents, extraction of drugs, fluorescence and chromatographic analysis and exercises on the valuation of drugs. In part V are found chapters on the microscope, microscopic technique, fibers and surgical dressings, cell structure, cell contents, microscopic study of drugs, examination of powdered drugs and quantitative microscopy.

The book is well illustrated throughout. Its nine maps of different areas of the world and the countries wherein the most important medicinals of plant and animal origin are produced are accompanied with opposite pages of legends carrying the numbers of items corresponding to the numbers which are found on the maps.

Enuresis or Bed Wetting By R. J. Batty, M.D., B.Sc., D.P.H. Second edition. Cloth. Price 9s. 6d. Pp. 103 with 9 illustrations. Staples Press Ltd., Staples House, 14 Great Smith St., London S.W. 1. 1948.

The author has had extensive experience with the problem of bedwetting. His effort is to arrive at rational treatment based on thorough study of the causes for enuresis. The anatomic and physiologic basis for micturition is carefully and fully discussed. Physical factors ranging from anatomic defects to the presence of infection with threadworm (*Trichuris trichiura*), are carefully inquired into. Enuresis is seen as a problem closely related to poor environmental and physical hygiene and poor training. The necessity for full and complete physical study, with inquiry into the home setting that may contribute largely to the occurrence of the symptom, is emphasized. Rational treatment is based on improvement in hygiene, with practically routine administration of anthelmintics and with primary emphasis on training procedures. Psychotherapeutic procedures are limited to suggestion such as hypodermic administration of sterile water, reward and reassurance.

The author reports a large measure of success in the treatment outlined. The impression is gained that the children treated were largely exposed to unhygienic physical environment and much parental neglect. The discussions are sound as far as they go. Although the author refers to and appreciates the fact that psychologic factors play a role in enuresis, the discussion is most limited and there is no evidence that the author has considered enuresis as a symptom of neurotic disturbance or as evidence of neurotic character structure. The fairly full literature on this aspect of the problem is completely ignored. For this reason, the little book must be regarded as a partial presentation of the problem of enuresis, excellent in the area it covers, but lacking in the failure to expose adequately the psychologic aspects of the problem.

Helpful Hints to the Diabetic By William S. Collins, B.S., M.D., Chief of the Diabetic Clinic, Malmondes Hospital, Brooklyn, New York, and Louis C. Boas, A.B., M.D., Chief of the Diabetic Clinic, Greenpoint Hospital, Brooklyn, New York. Cloth. \$3. Pp. 135 with 64 illustrations. Charles C. Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Ill. 1949.

This is an exceptionally good, brief manual for diabetics. It is concise and scientifically accurate. It defines and describes the disease and clarifies the roles of diet, insulin and general health supervision. It contains excellent tables of food values and charts. The administration of insulin is explained in a series of clear wash drawings showing the use of ordinary and spring injector syringes. Testing of the urine is illustrated with color charts showing the appearance of negative, trace and positive Benedict reactions with the tablet method. Travelers' insulin kits are illustrated. An excellent series of 24 hour circle charts explains the relationship of insulin to meals for each type of insulin. The book offers a scholarly approach, yet is clear enough for any intelligent patient to understand. It is reassuring in tone. There is an excellent section on diabetes quackery. The press work and type face are beautiful, and there are excellent color plates. This can be designated as a genuinely outstanding book for physicians to recommend to their patients.

Chemical Constitution and Biological Activity By W. A. Sexton, B.Sc., Ph.D., F.R.I.C. With a Foreword by Professor A. R. Todd, M.A., D.Phil., D.Sc., F.R.S. Cloth. 55s. Pp. 412 with 42 illustrations. E. & F. N. Spon Ltd., 22 Henrietta St., London W.C.2. 1949.

The material of this book is the outgrowth of many sciences and the success or failure of accomplishing the titular task of relating chemical constitution to biologic activity depends as much on the status of current knowledge in such wide fields as chemistry, biology and physics as it does on the ability of the author. Although it is possible now to establish many links between chemical constitution and biologic activity, it will become obvious to the reader that many gaps still remain. This is not surprising considering that the bulk of present knowledge of this field is the result of research carried out within the last two decades. It is heartening to note, however, that the acceleration of research and the accumulation of new literature is so rapid that the author found it necessary to set

the middle of 1947 as the deadline for receipt of papers to be considered for the textbook. There is no doubt that this book will stimulate even greater efforts in the field.

The book is divided into two parts. The first part deals with macromolecules, chemical mechanisms determining drug activity, physicochemical considerations, modification of drugs by organisms and the effects of specific chemical groupings. The second part of the book deals with selected topics such as nicotinamide and riboflavin, vitamin B₁, paraaminobenzoic acid and sulfonamide drugs, growth factors, the porphyrins, choline and its derivatives, quinones and quinoid substances, symbiosis, parasitism and antibiotics, some aspects of hormones, miscellaneous bactericides and fungicides, antiprotozoal drugs, insecticides and anthelmintics, cancer, plant growth regulators, antigens and antibodies. Numerous references to the literature are given at the end of each chapter.

The wide range of subjects covered and the scholarly handling of them testify to the ability of the author. The omission of certain subjects, such as the carotenoids, is deliberate and results from our present lack of knowledge of the mechanisms whereby these substances exert biologic activity. Although the book is directed primarily to the chemist, the biologist or pharmacologist who has an appreciation of molecular structure will find the book both stimulating and useful.

Einführung in die innere Medizin Von Dr. Hans Julius Wolf, ausserplanmässiger Professor für innere Medizin an der Universität Göttingen. Fourth edition. Cloth. 27 marks. Pp. 653 with 73 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O, Agents for U. S. A. Grune & Stratton, Inc., 381 4th Ave., New York 16, 1949.

By dint of a judicious use of large pages, some fine print, a careful choice of material and utmost concreteness of expression, the author of this textbook has achieved a comprehensive and altogether commendable coverage of the field of internal medicine. Emphasis is on diagnosis, symptomatology, pathologic physiology and prognosis. The recommendations for treatment tend to be vague and general, no distinction is made between generic and proprietary names for drugs, and these names are commonly abbreviated while personal names are spread out. These continental customs are, of course, well established, but it is time that their wisdom was questioned. In every other respect the book combines the results of a profound knowledge of the subject with a most painstaking thoroughness of presentation, it is remarkably free from errors, well illustrated, beautifully bound and carefully indexed. It will be a useful source of information and suggestions to students and practitioners of internal medicine and deserves a place in the library of every medical school.

Drinking's Not the Problem By Charles Clapp Jr. Cloth. Price \$2.50. Pp. 179. Thomas Y. Crowell Company, 432 4th Ave., New York 16, 1949.

This volume is written as an aid to potential alcoholics or alcoholic "repeaters" in their attempts to find individual solutions to the drinking problem and to underlying emotional difficulties. The book urges self-analytic methods that may bring better self-knowledge and through this a resolution of personal conflicts. Use of a psychiatric team is encouraged after a start toward recovery has been made. The point of view is expressed that the mere cessation of drinking is not sufficient to correct alcoholism, as pressure of emotional conflicts will again build up and lead to the same attempt at a false solution through alcohol. Several case histories of persons said to have found a solution through the methods described are mentioned.

Health Instruction Yearbook 1949 Compiled by Oliver E. Byrd, Ed. D., M.D., F.A.P.H.A., Professor of Health Education and Director, Department of Hygiene School of Education, Stanford University. Foreword by Charles E. Smith, M.D., President, California State Board of Public Health. Cloth. \$3.50. Pp. 276. Stanford University Press, Stanford University, California; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1949.

This book contains material relating mainly to 1948. Each of the six previous editions has been reviewed in *THE JOURNAL*. This, like its predecessors, is a useful volume for the desk of the public health official, the educator or the practicing physician, giving in brief form a comprehensive summary of the year's developments in scientific and social medicine.

Quantitative Ultramicroanalysis By Paul L. Kirk, Ph.D., Professor of Biochemistry, University of California, Berkeley. Cloth. \$5.00. Pp. 310 with 113 illustrations. John Wiley & Sons, Inc., 440 4th Ave., New York 16, Chapman & Hall, Ltd., 37-39 Essex St., Strand, London W.C.2, 1950.

To appreciate this book properly it is necessary to understand what is meant by ultramicroanalysis. This is easily achieved by citing the weights of samples used in some of the better known analytic methods. Macro-methods employ samples of the order of 0.1 Gm., semimicro-methods require samples of 10 to 20 mg., and micro-methods use samples of about 1 mg. The ultramicro-method employs a sample of 0.001 mg. The value of a technic which permits the use of samples of ultramicro proportions is evident to the biochemist, clinician and biologic research worker. It is interesting to note that most of the fundamental chemistry of plutonium was elucidated by the use of the ultramicro-method before as much as a milligram of the element was synthesized.

To anyone employing or planning to employ the ultramicro method, Professor Kirk's book will save a great deal of time and effort. The methods in the literature have been carefully screened by the author, and only those which fall within the limits of accuracy required in analytic practice have been included. The book deals with general, volumetric and colorimetric apparatus and technic and the analysis of metallic and nonmetallic constituents by titrimetric methods, volumetric gas methods, spectrophotometric and physical methods. There are 113 illustrations and many references to the literature. The book should prove of interest to many chemical, biochemical and biologic research investigators.

Personality Projection in the Drawing of the Human Figure (A Method of Personality Investigation) By Karen Machover, Kings County Psychiatric Division, New York, N.Y. Publication No. 25, American Lecture Series. A Monograph in American Lectures in Psychology. Edited by Molly Harrower, Ph.D. Cloth. Price, \$3.50. Pp. 181, with illustrations. Charles C. Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill. 1949.

This volume discusses a relatively new projective technic that is, study of drawings of the human figure as a method of personality investigation. The book is divided into three parts. Part 1 discusses origin of methods and theoretical considerations involved in the problem as they relate to the phenomenon of projection of unconscious material, the constancy of such projections and the mood and sources of projection. Part 2 discusses mechanisms of interpretation of the drawings, such as meaning of anatomic configurations and aspects of clothing. Indications of conflict and differential artistic treatment of male and female figures are described in detail. Part 3 provides illustrations of drawings which show diagnostic indications of several neurotic and psychotic types.

The detail into which the author has gone in describing proper methods of application of the technic make this volume helpful to anyone interested in the use of practical projective technics in character analysis.

The Transuranium Elements Research Papers Edited by Glenn T. Seaborg, Joseph J. Katz, and Winston M. Manning. Parts I & II. National Nuclear Energy Series. Manhattan Project Technical Section Division IV—Plutonium Project Record Volume 14 B. Cloth. \$15. Pp. 859, 861-1733 with illustrations. McGraw-Hill Book Company, Inc. 330 W. 42nd St., New York 18, Aldwych House, Aldwych, London W.C.2, 1949.

On Jan. 28, 1941 a report by G. T. Seaborg, E. M. McMillan, J. W. Kennedy and A. C. Wahl was submitted to the *Physical Review* for publication. The report, withheld from publication until 1946 because of the nature of its contents, set off the most massive research program in the history of science. The report announced the discovery of a new transuranic element, which was later named plutonium. The report is reproduced in its original form in part I of this two-volume collection of about 160 research papers. Most of the papers deal with the production and chemistry of plutonium. A lesser number of papers are devoted to neptunium, americium and curium. Several papers concerning uranium, radium, actinium, thorium and protactinium are included for convenient reference.

Although this collection of research papers deals primarily with the work carried out under the sponsorship of the War Department's Manhattan Project during the war years, several of the papers are of recent origin.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

HARD FLOORS AND FATIGUE

To the Editor—I have been asked to settle an argument between the safety inspector and the fire chief of this installation. One says that resilient floors have decreased industrial disabilities attributable to fatigue; the other thinks that rubber heels would be equally useful. Is there proof that hard floors are harmful if rubber heels are worn at all times by workers involved?

M D, Oregon

ANSWER.—Standing motionless on a hard floor introduces no variable over resilient surfaces, but walking or running is different. Such acts impart to the body a coarse, irregular and infrequent vibration constituting a physiologic insult. Damage from such vibrating tools as pneumatic drills or jackhammers is well established and chiefly is represented by synovitis, neuritis, local vascular instability and pathologic fatigue. The results from walking on hard floors are less well defined but are related. The muscles are held in a state of protective contraction, articular surfaces are rammed against one another, soft tissues about the ankles swell. Fatigue is in evidence. However, some degree of murement arises, for which there is inadequate explanation. It is the newcomer to hard floors who suffers the greatest discomfort. The infantryman subjected to long marches on hard pavement prefers his heavy marching shoes, but the hospital nurse continually walking on terrazzo floors elects shoes with rubber heels and sometimes rubber soles. In general, rubber heels and soles mitigate the body's impact on hard surfaces. With possible rare exception, floor resiliency and devices for shock absorption such as rubber heels and carpets promote bodily comfort.

ENDOMETRIOSIS

To the Editor—Are there any reports which state whether infertility is a result of the progression of endometriosis or whether infertility occurs before the endometriosis and is just a coincidental finding? What is the best medical treatment for beginning or early endometriosis in a 23 year old nulliparous woman?

M D Illinois

ANSWER.—Available reports do not specifically answer the first question. In many cases of endometriosis the patient had used contraception to avoid pregnancy, so it is not always possible to determine whether the patient was fertile or not. The same problem has been observed in infertility studies. One commonly encounters patients who avoided pregnancy by contraception for a long time following marriage but did not become pregnant on discarding these methods. "One child sterility" has been suggested as due to endometriosis. It is not uncommon when operating on patients with endometriosis to discover that the patient had one child and then dysmenorrhea developed. This seems to be commoner in patients with endometriosis involving one or both ovaries. One suggestion was that the capsule of the ovary was thickened and scarred by the endometrial implants, but experimental work failed to reveal any capsule about the ovary. The infertility associated with endometriosis has never been fully explained.

The treatment at present is experimental. No conclusive results have been proved, but results are at least encouraging. One can understand that the treatment is difficult to evaluate because the implants should be observed both grossly and microscopically before a cure can be reported. About the only place where this can be done, aside from rare extragenital lesions is in the vagina (endometriosis rarely occurs in the cervix).

For the single girl two methods are in practice: one requires use of rather large doses of estrogens (enough to suppress ovulation) for 18 to 21 days of each cycle, medication is then discontinued until the next cycle, with persistent and continuous therapy for two or three months at a time to completely suppress ovulation. At least another year or two probably will be required to evaluate this method.

The second method of treatment is surgical. All visible implants seen in the pelvis or on the ovary are removed, the

cervix dilated thoroughly and the uterus suspended. This is considered radical by some and conservative by others.

The married woman should be advised to become pregnant without delay. If pregnancy does not occur, after proper sterility studies on both parties, the other aforementioned methods should be used.

BURNING SENSATION IN EYES

To the Editor—Since I had the water softener tank removed the water does not make my eyes burn when I take a shower. What is in the softener to cause burning sensation in the eyes?

S P Strange M D, San Francisco

ANSWER.—This query fails to indicate the type of water softening chemicals involved. Hence, this reply comprises generalities. Many wholesome untreated waters are distinctly alkaline, presenting a pH value approximating 8.5, while the pH of tears is 7.35. Slight eye irritation may result from any exposure. On occasion, water softening systems make use of phosphates, some of which lead to soluble complexes of an alkaline nature. Almost any soap may irritate the eye and notably those rich in alkali builders, which chiefly depend on the action of alkali phosphates. These same phosphates, apart from soap used in bathing but present in the water itself, may lead to eye irritation. In the zeolite process of water softening, the one presently regarded as best suited for household purposes, the pH value of the water is somewhat increased even though the hardness be reduced to zero. Nothing in these statements implies that any properly household-softened water is conducive to any serious eye damage. In industrial practices, such as in the softening of boiler water, a number of chemicals that might be utilized could constitute damaging eye irritants. This group includes sulfuric acid and chromates.

DYSMENORRHEA

To the Editor—A woman of 31 years has much cramping and pain with her menses which in the past two or three years have become scant and recently somewhat delayed. Eight years ago she had ruptured uterus during labor (first pregnancy). Surgery was done and she made a good recovery. She and her husband fear pregnancy. They have adopted two children. Physical examination reveals no general or pelvic abnormality. She has been advised to have a hysterectomy apparently because of the belief that she probably is having menopausal symptoms. Is hysterectomy likely to do her more good than harm? Chorionic gonadotropin and estrogenic hormones have given some relief but she feels that she does not want to continue that treatment indefinitely.

M D Kansas

ANSWER.—Is this a primary or acquired dysmenorrhea? The history indicates that the pain started after the ruptured uterus. Dilatation or curettage should be done to rule out cervical stenosis or stricture and to determine whether polyps or pedunculated fibroids in the cervical canal cause the cramps. Endometriosis also must be considered, particularly because of the ruptured uterus and the possibility that some endometrium was extruded into the abdominal cavity at the time. Careful pelvic examination, including rectovaginal examination, frequently will reveal painful nodulations in the pelvis, particularly behind the cervix, in the uterosacral ligaments and occasionally around the ovaries. Often a fixed retrodisplacement is noted also. There is no specific diagnostic test for this condition, so that laparotomy is the only way one can be sure it is present. Inflammatory residues, preceding, incident to or concomitant with the ruptured uterus may give rise to painful periods.

Dysmenorrhea is an illusive symptom difficult to evaluate because of the patient's psychic makeup.

The question of pregnancy poses other problems. If the tear in the ruptured uterus was not long and it was adequately repaired without subsequent rise in temperature, there need be no fear of pregnancy. If the tear was long and the uterus badly damaged, the uterus probably should have been removed at the time of operation. The cause of the rupture probably

SMOKING TOBACCO

To the Editor—The recent article on smoking in the *Readers Digest* has raised questions. The statement was made that smoke from a pipe is greatest in nicotine concentration, cigaret smoke the least and cigar in between. It seems to me that the important factor is not the amount of nicotine in the smoke but the amount of nicotine which is absorbed into the system.

M D, Nebraska

ANSWER—Although more nicotine is absorbed from tobacco smoke inhaled into the lung than from that barely taken into the mouth, studies have shown that this difference is not so great as may be imagined. Nicotine rapidly precipitates from the smoke onto the mucous membrane so that mere quiet smoking, without inhalation, deposits more than half the nicotine from the smoke. Smoking habits vary, and the amount of smoke contained in nicotine which is taken in by smokers either from pipe or cigarets depends on the force, frequency and volume of suction as well as on the nicotine content of the smoke itself. The length of the cigaret consumed and the form of the pipestem and the frequency with which it is cleaned also affects the nicotine content of the inhaled smoke and, consequently, the amount which is absorbed.

TIREDNESS AND OVERWEIGHT

To the Editor—Five patients complain of tiredness and overweight (25 to 50 pounds) and mild lethargy. The pulse rate, blood pressure and temperature are normal. The basal metabolic rates and serum cholesterol per hundred cubic centimeters are as follows:

Age, Yr	B M R	Serum Cholesterol, Mg
15	—9	273
25	—4	255
26	—12	185
40	0	232
50	—5	320

Should one assume that these patients are suffering from moderate hypothyroidism, or is the increased cholesterol value a reflection of faulty fat metabolism, which is causing their obesity? What other conditions should be considered?

M D, New York

ANSWER—It would be desirable to secure a level of the basal metabolism rather than rely on a single determination. In some patients repeated observations reveal some lowering of the rate. The high concentration of cholesterol in the serum cannot be regarded as absolute evidence of hypothyroidism. Some of the patients would undoubtedly feel better as a result of weight reduction. A diagnosis of hypothyroidism would not be justified without a more definite lowering of the basal metabolic rate, although in occasional instances this disorder is present when the basal metabolic rate is not greatly lowered. A determination of the protein-bound iodine in serum would be of diagnostic value.

DISCHARGE FROM INVERTED NIPPLE

To the Editor—A 24 year old white woman has complained for three years of a whitish, foul discharge from the inverted nipple of the left breast. The discharge cakes on the surface of the inverted nipple, is easily wiped away, with no resultant bleeding, and, must be wiped away about every eight hours, otherwise a foul odor prevails. The nipple has been inverted as long as the patient can remember—"definitely before the age of 14 years." There is no pain, no masses or induration and no palpable lymphadenopathy. The breasts are symmetric and not pendulous. There is no excretion of the nipple or local signs of inflammation. The nipple can be retracted outward to just slightly above the level of the skin, but this is done with difficulty. The patient has two children of preschool age, she did not nurse them. The right nipple appears normal in every respect. Pelvic examination reveals nothing contributory. What are the steps in management of this patient?

L J Janis, M D, Atascadero, Calif

ANSWER—This patient apparently has a chronic low grade infection of the nipple ducts. Local therapy will accomplish as much as any other type of treatment, frequent washing of the nipple with soap, especially one of the newer detergents combined with hexachlorophene followed by the local application of an antibiotic such as bacitracin or aureomycin ointment.

USE OF PROCAINE HYDROCHLORIDE WITH TOXOID

To the Editor—Would the use in immunization of 0.5 cc of 1 per cent procaine hydrochloride with a 0.5 cc of fluid diphtheria, tetanus or pertussis toxoid result in any loss of antigenic effect of the toxoid? The procaine hydrochloride is used to diminish the burning of the toxoid after injection.

M D, California

ANSWER—The combination of 1 per cent procaine hydrochloride should not diminish the antigenic effect of the toxoids.

PIERCING EARS FOR EARRINGS

To the Editor—In *The Journal*, Nov 12, 1949, page 812, you described a method of piercing ears for earrings using a preliminary suture. However, when the earring is passed through the suture tract, usually a week or two later, the barbed point of the earring often makes a false passage before it emerges through the skin and thus predisposes to infection. I have used the following method in 10 cases with excellent results. A 17-13 gage hypodermic needle, 1 to 3 inches (2.5 to 8 cm) long is obtained. The gage of this needle is determined by the size of the barbed or threaded end of the earring. It should fit fairly snugly in the lumen of the needle. After application of an antiseptic and procaine anesthesia, the sterilized needle is passed through the ear lobe and the barbed end of the earring is slipped into the lumen of the tip of the needle as far as it will go. The needle is then withdrawn from the ear lobe carrying the barbed end of the earring with it. If slight pressure is maintained on the earring against the needle, the barbed end will not slip out of the needle. Since the earrings are inserted during the first visit, one can determine more readily whether the rings are placed as desired, and if necessary, place them in a different location by repeating the procedure. Eight of the patients were given a supply of 5 per cent sulfathiazole in talc and told to powder the lobules two times a week for three weeks. I have had no cases of infection, but infection occurred when sutures were used in previous cases. The gold of the earrings practically always contains 16 to 24 per cent copper, which exerts an inhibiting influence on microorganisms. While there was no active infection when no antibiotic was used, I believe healing is faster and there is less serous exudate when the weak antibiotic powder is used. The patients appreciate being able to wear the earrings immediately rather than an unsightly suture. The patient should be cautioned against removing the earrings for at least six weeks, at which time the tract should be firmly established.

H W Seiger, M D, Santa Monica, Calif

BLOOD LEVELS FOLLOWING PENICILLIN AND SULFADIAZINE THERAPY

To the Editor—On page 220 of *The Journal*, Jan 21, 1950, reference is made to blood levels following administration of penicillin and sulfadiazine. The answer states, "From as yet unpublished data, it has been determined that 8,000 units of procaine penicillin in oil with aluminum monostearate will give levels of 0.04 units of penicillin per cubic centimeter of serum at the end of 24 hours in infants and children weighing 10 to 40 pounds (4,536 to 18,144 Gm)." This probably refers to work done recently in this department (Kagan, B M, Nierenberg, M, Milzer, A, and Goldberg, D. Studies of Penicillin in Pediatrics III, *Pediatrics* 5: 664-671, April 1950). This statement should be corrected to read that 8,000 units of procaine penicillin in oil with aluminum monostearate per pound of body weight will give levels of 0.04 units of penicillin per cubic centimeter of serum at the end of 24 hours in infants and children weighing 10 to 40 pounds.

Our studies also showed that when this same dosage per unit weight of procaine penicillin G in sesame oil or of procaine penicillin G in water with sodium carboxymethylcellulose was given to infants and children of this weight group, there was no statistically significant difference in the serum levels obtained at the end of 24 hours. With such preparations containing 300,000 units per milliliter, a practical schedule of dosage would be 0.25 ml for a 10 pound infant, 0.5 ml for a 20 pound, 0.75 ml for a 30 pound and 1.0 ml for a 40 pound child. It is suggested that this dosage be given every 12 hours for serious infections particularly those due to relatively more resistant bacteria.

B M Kagan, M D, Michael Reese Hospital, Chicago

USE OF HOT PACKS IN POLIOMYELITIS

To the Editor—On page 610 of the February 25 issue of *The Journal* was a question on the use of hot packs in poliomyelitis. At the Kingston Avenue Hospital for Contagious Diseases in Brooklyn, where patients with acute poliomyelitis are treated, hot packs, according to Sister Kenny's method, were used and discarded. We have been using a sympatholytic drug (benzaxoline hydrochloride [priscoline®]), which relieves the pain, irritability and fretfulness of many of the patients. The original use of hot packs was as a counterirritant in the relief of the pain. No one ever suggested that the pathologic process would be in any way influenced by the packs. However, we have found that better results have been obtained from the sympatholytic drug and much less effort is required in the administration of this than in use of the hot packs.

Irving J Sands, M D, Brooklyn

VULVOVAGINITIS

To the Editor—In the February 25 issue of *The Journal* the question is asked as to what treatment is recommended for vulvovaginitis in a 7 year old girl who has failed to respond to concomitant use of estrogens and sulfathiazole in suspension. The inquirer should have been advised to search for oxyuriasis and also for foreign bodies in the vagina. Every discharge is not necessarily due to bacterial or fungus infections or to protozoan infection. It is best to emphasize the causes enumerated here, particularly the oxyuriasis. In pediatric practice one should look for pinworms as a cause of vulvovaginitis. Two different methods are available, namely, the cellophane anal swab and focusing a searchlight on the anus after it is spread apart for the observer to look for a worm. If this latter practice is followed each night for a month, one will not miss finding worms if they are present.

L Charles Rosenberg, M D, Newark, N J

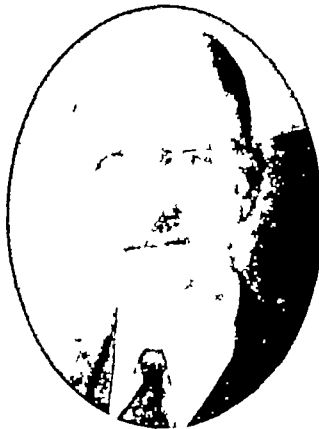


E. R. Anderson

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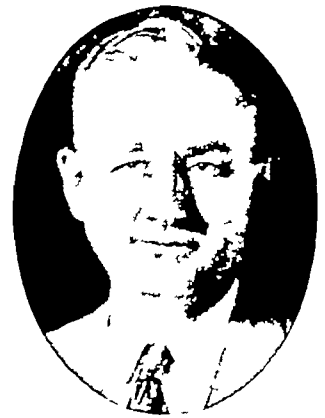
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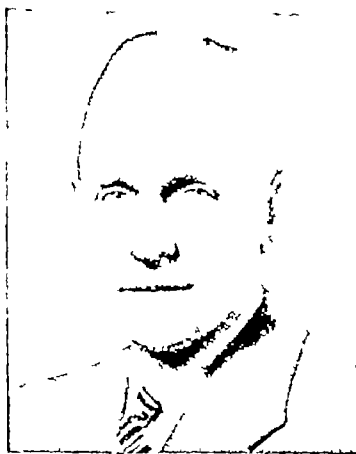
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MEDULLARY NAILING OF THE FEMUR

Comparative Study of Skeletal Traction, Dual Plating
and Medullary Nailing

DANA M STREET M.D.
Memphis Tenn

The treatment of fractures in the femoral shaft has undergone a process of evolution in which five main mechanical principles have been developed. The older methods are safer from the standpoint of infection and do not require elaborate operative facilities. However, they require greater manipulative skill to achieve an equally good anatomic result and in some types of fractures such a result is a physical impossibility by closed methods.

The oldest method that of reduction by manual traction and manipulation followed by external fixation, was extensively employed by Hippocrates¹ and his group. It has been commonly used since particularly after Mathijsen's contribution of plaster bandages in 1852. As Mr H Osmond Clarke has said, it is still the safest method yet its use in this country is chiefly limited to fractures of the femur in children because of the difficulty in maintaining satisfactory alignment. Joint stiffness following immobilization is also less of a problem in children.

The second method that of continuous traction, was introduced by de Chauviac about 1350.² Its chief advantage was in eliminating the risk of displacement and overriding due to insufficient external fixation. It was widely used prior to the advent of plaster fixation, and with the refinements of skeletal traction it is still one of the most popular forms of treatment. Its advantages in cases of fracture with severe soft tissue damage have been demonstrated by Key and Conwell³ and more recently by Winant⁴ using delayed primary closure. Some mobilization of the knee and full range of motion of the ankle is possible. The disadvantages are the prolonged period of recumbency with almost constant supervision and frequent adjustment of the traction.

From the Orthopedic Section, Veterans Administration Medical Teaching Group, Kennedy Hospital.

Read before the Section on Orthopedic Surgery at the Ninety Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1949.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are a result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

¹ Hippocrates. *The Genuine Works of Hippocrates*, translated by F. Adams. Baltimore: Williams & Wilkins Company, 1939.

² Clarke H. O. in discussion on McLaughlin, Gaston, Neer and Craig.

³ Cited by Bick, E. M. *Source Book of Orthopaedics*, ed 2. Baltimore: Williams & Wilkins Company, 1948.

⁴ Key J. A. and Conwell H. E. *The Management of Fractures, Dislocations and Sprains*, ed 3. St. Louis: C. V. Mosby Company, 1942.

⁵ Winant E. M. *The Use of Skeletal Traction in the Treatment of Fractures of the Femur*. *J. Bone & Joint Surg.* 31 A: 87-93, 1949.

The danger of distraction with resulting nonunion has been stressed by Bohler.⁶ With proper technic, infections of the pin site and ring sequestrums should be rare. A method frequently employed is a combination of the first and second, namely, that of maintenance in traction until sufficient callus has formed to stabilize the fragments, then application of a cast. Although this allows a short hospitalization period, it has the disadvantage of prolonged immobilization of the knee and other joints.

Open reduction and wire suture fixation was attempted as early as 1827 by Rogers,⁷ but it was not until the improvement in the results of surgery brought by the concepts of antisepsis and asepsis that such procedures gained acceptance. The plate employed by Lane⁸ in 1905 has proved a more stable fixation for many fractures than the previously used wire sutures, transfixion screws and Parham band. Anatomic reduction can be maintained, though there may be extensive comminution or even loss of a fragment. However, there continues an active controversy whether this advantage offsets the risk of infection and the possibility of delayed union. As McLaughlin⁹ has stated, internal fixation in only one plane must be supplemented by external fixation.

External skeletal fixation was originally employed by Bonnet about 1870, and again by Parkhill⁹ and also Lambotte¹⁰ around the turn of the century. More recently the Haynes,¹¹ the Roger Anderson¹² and the Stader¹³ apparatus have provided greater ease of adjustment. Theoretically external skeletal fixation should retain the advantage of closed reduction while securing the solidity of skeletal fixation and the easy adjustment of traction. Since it does not extend beyond the joints, there should be no restriction of motion. But in the femur, where the pins must pass through heavy muscles, there is considerable irritation and exudation. Even such a staunch advocate of external skeletal fixation as John R. Naden¹⁴ prefers medullary nailing for the femoral shaft.

The fifth method, medullary nailing, is a form of internal fixation in which the internal splint is suffi-

⁶ Bohler L. *Medullary Nailing of Kuntscher*, translated by Hans Tretter. Baltimore: Williams & Wilkins Company, 1948.

⁷ Lane W. A. *Operative Treatment of Fractures*. London, 1905.

⁸ McLaughlin H. L., Gaston S. R., Neer C. S. and Craig F. S. *Open Reduction and Internal Fixation of Fractures of the Long Bones*. *J. Bone & Joint Surg.* 31 A: 94-99, 1949.

⁹ Parkhill C. *Further Observations Regarding the Use of the Bone Clamp in Ununited Fractures*. *Fractures with Malunion and Recent Fractures with a Tendency to Displacement*. *Ann Surg.* 27: 553, 1898.

¹⁰ Lambotte A. *Chirurgie opératoire des fractures*. Paris: Masson et Cie, 1913.

¹¹ Haynes H. H. *Treating Fractures by Skeletal Fixation of Individual Bone*. *South M. J.* 32: 720-724, 1939.

¹² Anderson R. *End-to-End Reduction in Fractures of Lower Extremity*. *West J. Surg.* 41: 671-679, 1933.

¹³ Stader O. *Preliminary Announcement of a New Method of Treating Fractures*. *North Am. Vet.* 18: 37, 1937.

¹⁴ Naden J. R. Personal communication to the author, May 1949.

ciently strong to obviate the need for supplementary fixation. It is analogous to nailing in the femoral neck. The nail, by spanning the medullary canal and extending nearly its entire length, effectively controls displacement, angulation and rotation. Since the joints are not restricted by traction or immobilization and

joints are freely movable and duration of disability is the shortest.

This method has not emerged in its present form but has been a gradual development. During the first decade of this century Lambotte¹⁰ successfully used axial pinning in many of the smaller bones. He also treated subtrochanteric fractures of the femur by means of a long screw inserted through the greater trochanter. During the second decade medullary bone grafts were used with discouraging results except in the small bones such as the metatarsals. In 1918 Hey Groves¹⁵ reported 3 cases of gunshot fractures in the upper third of the femur in which he used medullary nails. This work seems to have been overlooked by subsequent authors. His nails spanned the canal but were rather short, extending only 3 inches (7.62 cm) below the fracture site. He tried three patterns of nail—a solid rod, one of cross-shaped section and a perforated tube. His problem was chiefly that of infection and he preferred the solid rod because there were no

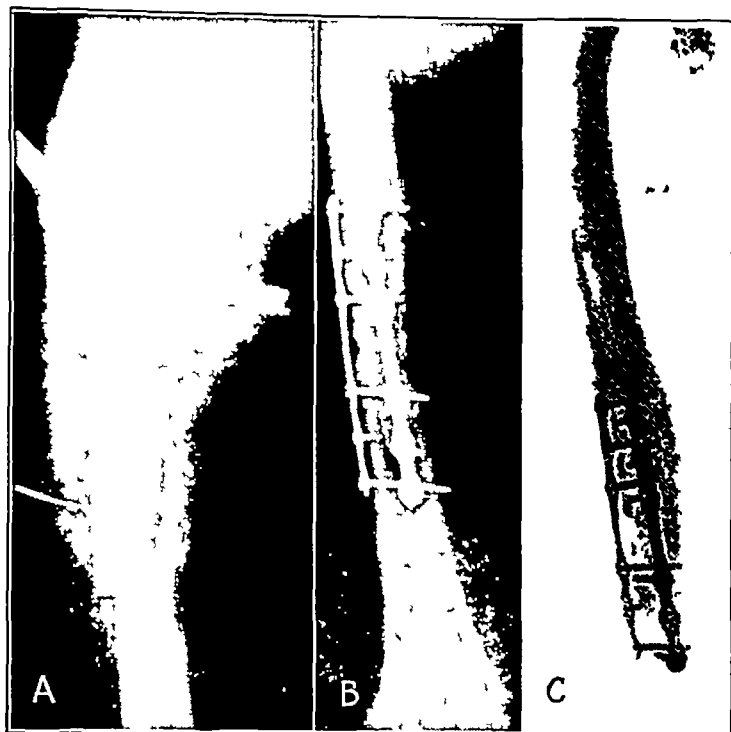


Fig 1—Bilateral femur fracture comminuted right treated by dual plating. A preoperatively, B good callus at eight weeks density equal to left (fig 2B) and C result at fifteen months.

the muscles are not transfixed by pins, joint motion and muscle power are readily maintained. The physiologic pressure exerted by muscle tone and early weight bearing tend to close the fracture line and promote early union.

Medullary nailing is the diametric opposite of the first method, closed reduction with external fixation, in



Fig 3—Fastest callus formation of all occurred in traction case. A dense callus at seven weeks. B result at twenty three months $\frac{1}{2}$ inch (1.27 cm) short anterior bow.

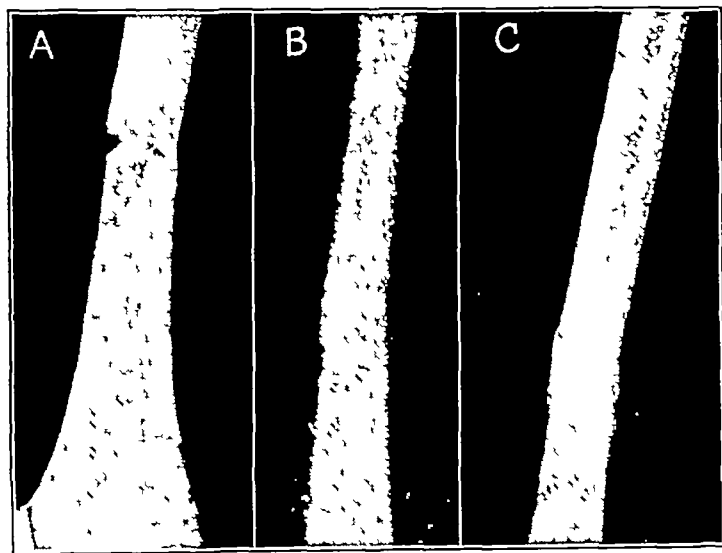


Fig 2—Bilateral femur fracture, transverse left treated by skeletal traction. A on admission. B good callus at eight weeks and C result at fifteen months.

which manipulative skill is necessary, special instruments are not needed, risk of infection is nil, the joints are immobilized and duration of disability is great. If medullary nailing is done by open reduction a minimum of manipulative skill is necessary, special instruments are essential, potentialities of infection are great, the

pockets or grooves to harbor infection. During the fourth decade axial Kirschner wires were used chiefly in the forearm by Joly¹⁶ and also by Danis¹⁶ of Belgium and Lambrinudi¹⁷ in England. The use of Steinmann pins for the ulna and femur was reported by Leslie V. Rush and his brother in this country in 1937¹⁸ and 1939¹⁹. He has since expanded his method to include fractures in many locations.

In 1940 Kuntscher²⁰ of Kiel, Germany, published his work on medullary nailing, and such nailing has

15 Groves E W H. Ununited Fractures with Special Reference to Gunshot Injuries and the Use of Bone Grafting. *Brit J Surg* 6: 203-247, 1918.

16 Cited by Scur R. Intramedullary Pinning of Diaphyseal Fractures. *J Bone & Joint Surg* 28: 309-331, 1946.

17 Lambrinudi C. Intramedullary Kirschner Wires in the Treatment of Fractures. *Proc. Roy Soc Med* 33: 153-157, 1940.

18 Rush L V and Rush H L. Reconstruction Operation for Comminuted Fracture of the Upper Third of Ulna. *Am J Surg* 35: 337-333, 1937.

19 Rush L V and Rush H L. Technique for Longitudinal Pin-Fixation of Certain Fractures of Ulna and of Femur. *J Bone & Joint Surg* 21: 619-626, 1939.

20 Kuntscher G. Die Marknagelung von Knochenbrüchen. *Arch. f. klin. Chir* 200: 443-455, 1940.

since been known as the Kuntscher method. It was rapidly adopted for treatment of German war casualties and the advantage of short disability was immediately apparent. His primary contribution was the use of a nail of sufficient size to render supplementary fixation unnecessary. He expanded the method to include not only fractures but osteotomies for malunion and femur shortening and arthrodesis.²¹

We agree with R. I. Harris²² that the method should be determined by the circumstances in which the treatment is to be given, the experience of the operator and the type of fracture. However the situation at Kennedy Veterans Administration Hospital has been somewhat unusual in that there have been many similar fractures of the shaft in vigorous young men. Since there were excellent operative facilities and my associates and I had had some experience with all these methods it seemed there should be some advantages inherent in one of the methods which would render it

Dual plating was carried out through an anterolateral or lateral approach, and two six-hole plates were applied, one to the anterior and the other to the lateral aspect. Postoperatively, the extremity was suspended in a balanced Thomas splint with Pierson attachment.



Fig 5—Rapid union with dual plating. A, union plus myositis ossificans at eight weeks. B, result at twenty-two months: no shortening or bowing. Myositis ossificans still present.



Fig 4—Slowest union also in traction case. A, scant callus at seven weeks. B, result at twenty-five months: 3/4 inch (1.9 cm) short anterolateral bowing.

superior to the others in treating this type of patient. We therefore conducted a study series employing skeletal traction, dual plating and medullary nailing as the three most promising methods.

Skeletal traction was applied by means of a Kirschner wire passed through the tibial tubercle because it was believed that there is risk of damage to the quadriceps mechanism when the wire is located in the supracondylar region. The limb was also suspended in a Thomas splint with Pierson attachment. The traction was increased rapidly during the first four days until overriding was corrected. After one week, if satisfactory reduction had not been obtained, the fracture was manipulated while the patient was anesthetized, after which the traction weight was reduced to about 10 pounds (4.5 Kg).

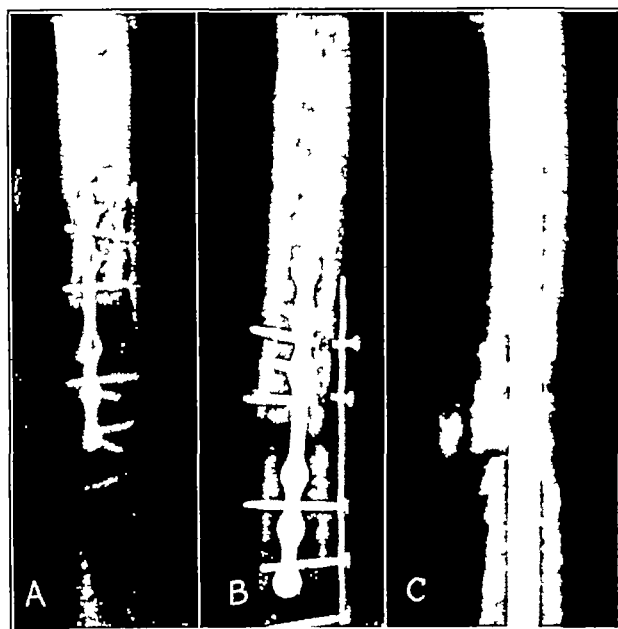


Fig 6—Only nonunion of series occurred with dual plating. A, no callus at fourteen weeks. B, screws broken, plates loose at twelve months. C, after nailing: dense callus, clinical union at thirteen weeks.

until there was roentgenologic evidence of callus consolidation. Traction was not applied, and the patients were encouraged to exercise the knee, hip and ankle.

The first 2 cases of medullary nailing were done by the open method, exposing the fracture site and insert-

²¹ Kuntscher, G. and Maatz, R. *Technik der Marknagelung*. Leipzig: Thieme, 1945.

²² Harris, R. I. in discussion on McLaughlin, Gaston, Neer and Craig.*

ing the nail retrograde. When the earlier form of nail with an eye was used it was necessary to make the small incision proximal to the trochanter first and by inserting a narrow osteotome into the medial side of the trochanter to soften the cortex for the passage of the nail. However, this is not necessary when the newer

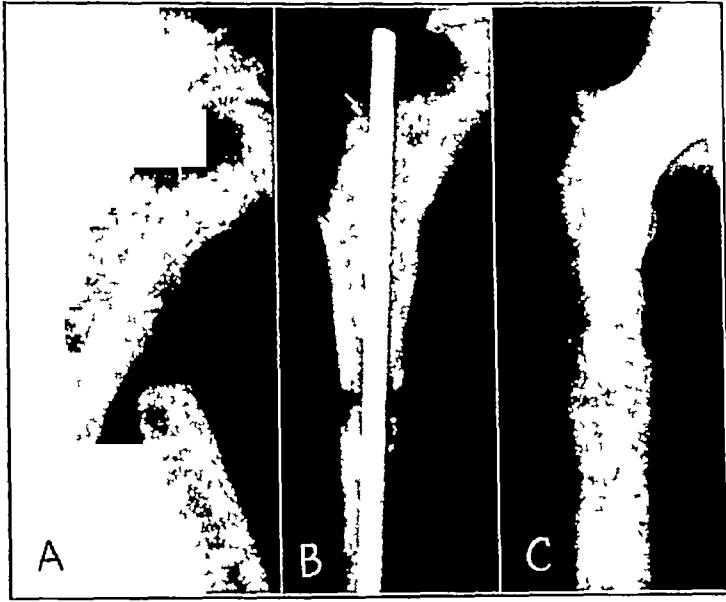


Fig 7—High fracture best treated by nailing. A preoperatively. B closed nailing at seven weeks, and C result following removal of nail at eight months.

form of nail with the threaded, pointed stud is used. This can be passed retrograde up through the trochanter without danger of comminution, and the proximal incision can be made when the point is felt subcutaneously. The driver-extractor is next screwed onto the stud, and the nail extracted until the distal end is at the fracture site. The fracture is then reduced and the nail driven into the distal fragment.

The next 3 patients were treated by closed nailing. In these, the nail was inserted from above and driven down to the fracture site. The fracture was reduced by traction and manipulation under fluoroscopic control, and the nail was then driven into the distal fragment. The postoperative program was the same for both open and closed nailing and consisted of three weeks in bed with the limb suspended as in the other cases. Ambulation on crutches was then begun, gradually increasing the weight placed on the injured extremity until it was fully weight bearing at the end of another three weeks. However, in many cases there were injuries in other parts of the body which necessitated an increase in these time intervals.

A total of 17 fractures were treated in rotation, after which the nailing procedure appeared to have such great advantages that the other two methods were abandoned except in unusual circumstances. We have now treated a total of 60 fractures of the femoral shaft by nailing without a single poor result and therefore have had no reason to regret this decision. Of the 5 traction cases we were unable to obtain satisfactory reduction in the first, so this one was plated. Therefore, 4 patients were treated by traction and 6 by plating. To the 7 cases of nailing, 3 were added to provide a comparison between 5 open and 5 closed. Data on a few cases are reported to illustrate typical observations and less usual problems.

REPORT OF CASES

CASE 1—In a bilateral femur fracture, the comminuted right femur was plated (fig 1) and the transverse fracture in the left was treated by traction (fig 2). Callus was apparent by roentgen examination on both sides at eighteen days. At eight weeks good callus was seen bilaterally. In the original roentgenograms it is of equal density though more extensive on the comminuted side. At sixteen weeks the callus had increased in density, clinical union was present and tenderness had disappeared. The patient was about to get out of bed when homologous serum jaundice developed, delaying his ambulation eight weeks. His result on the right at fifteen months was without displacement, angulation or shortening. At the same time, the left showed a slight displacement, no appreciable angulation and $\frac{1}{4}$ inch (0.64 cm) shortening. Motion of the right knee measured 178 to 32 degrees, and the left 180 to 30 degrees. This case illustrates the equal time for callus to appear and equal rate of callus consolidation in these two methods.

CASE 2—The fastest rate of callus formation was seen in another fracture treated by traction (fig 3). The callus was becoming dense at seven weeks, and the patient was bearing weight on the limb at fourteen weeks. His final roentgenogram at twenty-three months showed moderate displacement with interlocking of fragments resulting in $\frac{1}{2}$ inch (1.27 cm) shortening and some anterior bowing. Knee motion was 180 to 35 degrees. No atrophy of the thigh or calf was present, and he could walk and run without abnormal fatigue.

CASE 3—A contrast is seen in another patient treated by traction in whom union was the slowest of all (fig 4). The callus was scant at seven weeks. Because false motion was still present at twelve weeks he was placed in a hip spica for eight weeks, after which he wore an ischial weight bearing brace for three months. Callus did not appear solid until five

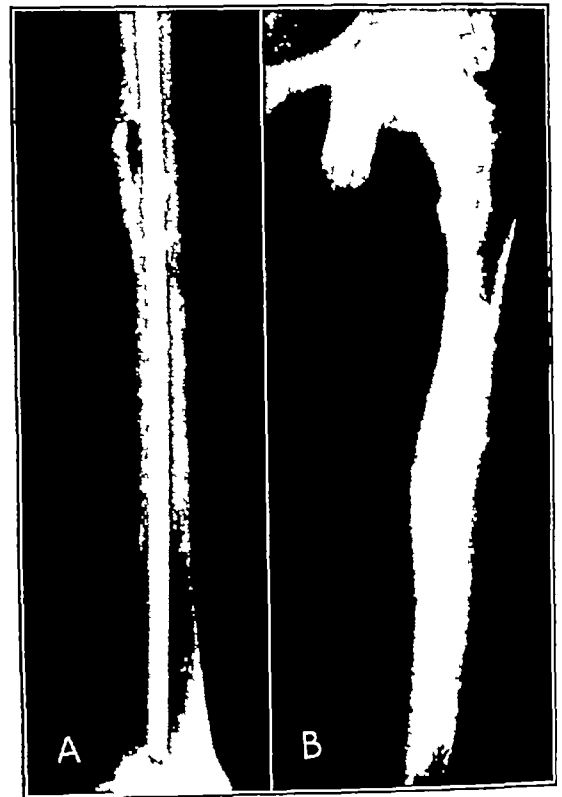


Fig 8—Ideal location of fracture at isthmus. A closed nailing at nine weeks. B result at twenty months, no shortening or bowing.

months. His result at twenty-five months was satisfactory with moderate displacement, anterior and lateral bowing and $\frac{3}{4}$ inch (1.9 cm) atrophy of the thigh. He had no symptoms while walking or running but a slight limp due to shortening.

CASE 4—A fracture treated by dual plating (fig 5) united promptly in eight weeks. There was 2 plus contusion of the adductor muscles, and at eight weeks considerable myositis

ossificans had developed. This was still present in the final roentgenogram at twenty-two months. There was no displacement, angulation or shortening, however, there was $1\frac{3}{4}$ inches (4.5 cm) atrophy of the thigh. Knee motion was 180 to 60 degrees, or 30 degrees limitation in flexion. The man works as a writer without symptoms.

CASE 5—In contrast to the rapid healing with dual plating in case 4 is the one nonunion of the entire series (fig 6). A trace of callus appeared at four weeks but did not continue to develop, and at fourteen weeks there was no apparent callus. This deficiency of callus was attributed to the gap between the fragments rigidly maintained by the plates. Ambulation was begun at six months in an attempt to stimulate callus, but at twelve months the nonunion was apparent, with broken screws and loose plates. Perhaps this might have been averted by the use of slotted plates. However, the result following insertion of a medullary nail was excellent. Callus formation, absent before, was now prompt and adequate. By thirteen weeks tenderness was gone, and the man was not only ambulatory but working, without symptoms, in a garden. Kuntscher and others have spoken of the psychic trauma incident to a long period of recumbency. Schizophrenia developed after this patient was off his feet for six months, which might not have occurred had the second method been used first.

CASE 6—A high fracture such as that illustrated in figure 7 is difficult to hold by other methods but ideal for medullary nailing. The nail was inserted when the fracture was openly

Anatomic Results

	Callus Appearance (Days)	Consolidation (Days)	Shortening (In.)	Angulation	Atrophy (In.)
Traction	70	140	7/10	10	$1\frac{1}{4}$
Plating	28	142	0	0	$1\frac{1}{4}$
Open nailing	90	137	0	0	$\frac{1}{4}$
Closed nailing	74	144	0	1	%

reduced and the patient was ambulatory while union was in progress. The nail was removed after eight months.

CASE 7—Another fracture treated by the closed method is shown in figure 8. The patient returned to work in a machine shop seven weeks after injury, with no disability. The nail was extracted at seven months.

RESULTS

The anatomic results in the 20 patients studied in this series are shown in the accompanying table. The figures represent averages for each of the four groups of cases.

Various opinions have been expressed with regard to the effect of open reduction on callus formation. Most consider it to be diminished. In regard to medullary nailing, it was at first thought by Kuntscher and others to stimulate callus. Bohler,⁶ in his recent book, expressed the opinion that nailing delays callus formation. In the cases reported herein the formation of callus was apparently neither stimulated nor delayed.

In the accompanying table callus appearance refers to the number of days following fracture when it is visible by roentgen ray. Daily roentgenograms were not taken, and in many instances the callus was already well defined in the first postreduction film. This error is less evident in the traction cases, in which more roentgenograms were taken. The differences shown in the first column are not considered significant, and it can be stated that appearance of callus is not grossly affected by any of the methods.

Consolidation of callus was difficult to determine accurately owing to differences in roentgenologic technique. The presence of 4 plus callus, that is, callus of maximum density, was taken as the end point. Here

again it would seem that the development of callus is not grossly affected by any of the methods.

Shortening ranged from $\frac{5}{16}$ to $\frac{3}{4}$ inch (0.8 to 1.91 cm) and was found only in the traction group. Angulation in this group showed a maximum of 20 degrees. One patient treated by closed nailing bent

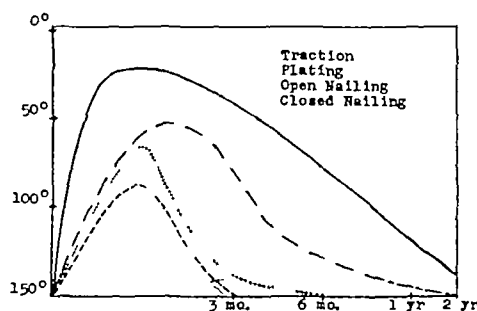


Fig 9—Results of various methods of fracture repair in function of knee joint

his nail 5 degrees, but the shortening was negligible. The figures for atrophy show averages at three months as measured 5 inches (12.7 cm) above the patella. Most of the patients had completely recovered from the atrophy by the end of two years.

The results in function of the knee joint are shown in figure 9. Owing to the wide individual variation, the shapes of these curves are not statistically accurate. However, it can be said that limitation of knee motion develops more rapidly and persists longer with traction than with the other two methods. All knees returned to approximately normal range of motion in two years except in 1 case of dual plating with 30 degrees limitation persisting. The difference between the two medullary nailing groups is accounted for by severe associated injuries in those with fractures nailed by the open method.

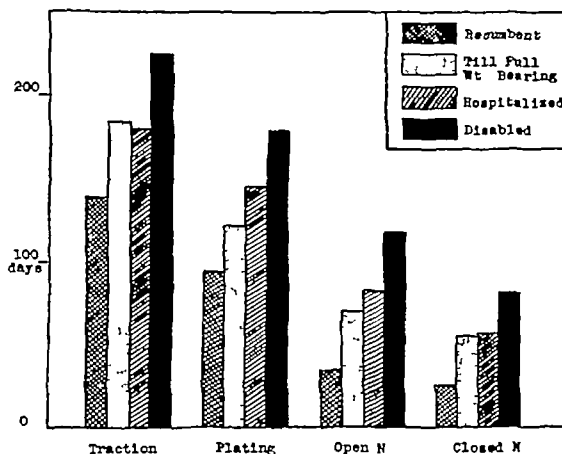


Fig 10—Results of fracture repair methods in terms of disability

Results in terms of disability are found in figure 10. The periods of hospitalization are longer in a veterans hospital than they would be in the average civilian hospital. The time until full weight bearing is resumed closely parallels the period of recumbency and total disability. In 1942 Dr Van Gorder²³ reported 58 cases of fracture in the femoral shaft treated by skeletal

²³ Van Gorder G W. Fractures of Femur. New England J Med 226: 526-530, 1942.

traction The total disability in his series averaged seven and one-fourth months, or about two hundred and twenty days, which is almost the identical figure here obtained and tends to support the validity of this series

CONCLUSION

Although the series studied is small, evidence is presented which indicates that the processes of fracture healing are not significantly disturbed by methods of internal fixation. Anatomic and functional results are better with these methods than with skeletal traction. Hospitalization and total disability are shortest with medullary nailing, which is recommended as the treatment of choice in suitable fractures of the femoral shaft where operative facilities permit.

ABSTRACT OF DISCUSSION

DR GEORGE O EATON, Baltimore Intramedullary nailing, although far from new, is exciting increasing interest in this country. If it measures up to the exacting standards of American medicine, it should be incorporated in the physician's armamentarium. Are the risks attendant to its use more than compensated for by the advantages? Can the risks be eliminated or diminished? In bones other than the femur, shock during the operation of intramedullary nailing is seldom a serious factor. Operations on the femur, if extensive or prolonged, produce shock of varying degree. Intramedullary nailing is no exception. In children and young adults joint stiffness following the usual period of traction or immobilization is usually mild and of short duration. The older the patient and the more prolonged the anticipated convalescence, the more is the physician justified in submitting the patient to intramedullary nailing. The fracture must be within the middle two quarters of the shaft. One must estimate accurately the length and diameter of the medullary cavity by means of preoperative roentgen studies. Apparently there is no such thing as a normal or average size medullary cavity. Its size cannot be formulated on the basis of age, sex, height, weight or other known factors. In Bohler's book entitled "Medullary Nailing of Küntscher" there is a section on "how to proceed if a medullary nail can be neither driven in further nor removed." Too short or narrow a nail does not immobilize, the use of too wide a nail may come close to being an unforgettable experience. Technical difficulties abound in this procedure. For the surgeon who is called on to manage the occasional case of fracture of the shaft of the femur, this method offers little advantage. Bone healing is not more rapid. Open reductions always carry more risk than closed reductions. A large assortment of nail sizes must be at hand for one case. Pains-taking roentgen study must precede operative intervention. Fracture of the nail or infection may greatly prolong the healing time. The design of nails and instruments for their introduction and removal is undergoing thorough study at present, and there is reason to believe that through this study the most efficient type of nail and instruments will be developed.

DR LESLIE V RUSH, Meridian, Miss. Dr. Street has approached the subject of medullary nailing from the point of view of the true scientist. My approach was from the standpoint of mechanics. Like Dr. Street, I am convinced that intramedullary fixation has definite possibilities and approaches the fracture problem more physiologically than any other method advocated so far. I have not had any experience with the ingenious nail of Dr. Street, but I have had the pleasure of seeing Dr. Street use this nail, and it was a convincing demonstration. My experience has been with a smaller nail or pin of smaller diameter than the medullary cavity, and I would like to dwell a little on the mechanics of the principle. My experiments have been directed toward trying to develop a simple method that was applicable to all of the long bones. My experience in the femur is not nearly so extensive as that of Dr. Street. I have used this type of fixation in a little more

than 100 cases with practically all of the long bones including about 22 cases of fracture of the femur.

DR J WARREN WHITE, Greenville, S. C. Inspired by the Küntscher nail, the group with which I am associated in Greenville has worked out a combination of internal fixation, that is, the use of a plate and the Küntscher idea, which was reported at the meeting of the Southern Surgical Association in November 1948. As far as we know it is a new technique. Any surgeon who has inserted a Küntscher nail and has not been able to pull it out—either because the hook has straightened out or something else has happened—has found himself in an embarrassing situation. Innumerable complications can develop and use of the Küntscher nail is fraught with many hazards. The technique which we have worked out has been tried only in 10 patients. It is of use in all the long bones, but it is particularly valuable in both bones of the forearm. We all agree that the use of plates as a routine measure is not desirable. It tends to distract the bone ends. We have wanted to do something that allows the maintenance of end to end apposition so that bone ends are in contact. The idea of the Küntscher nail, that is, internal fixation with end to end apposition is physiologically correct. It does allow, with the muscle spasm, the close desirable contact of the two fragments without complete immobilization. In order to get contact and to allow the small amount of desirable osteogenic motion at the site of the fracture, we screw a conventional plate on one fragment only. Most of us still have these conventional plates in our surgical kit all the time. It is unnecessary to invest a large amount of money to get the different types of Küntscher nail. The plate is fastened with the screws to the proximal portion and the distal portion is slipped or rarely driven into the medullary cavity on the other side. To be sure, that does not make a perfect anatomic reduction, but it does maintain physiologic end to end contact, and it allows also that small amount of motion at the site of the fracture which a good many of us consider desirable as an osteogenic stimulus.

DR DANA M STREET, Memphis, Tenn. The use of a plate such as Dr. White described would seem to forego one of the main values of the medullary nailing method, that is, a sufficiently long hold on the fragments to make it possible to dispense with external fixation and allow early ambulation of the patient. The risk of fat embolism has been much discussed in the literature. Subclinical emboli are apparently frequent with or without nailing. Bohler has stated that the few fatal fat emboli have occurred in patients subjected to nailing while in severe shock. He emphasizes that nailing is a purely elective procedure. My associates and I customarily keep a patient in skeletal traction for seven to nine days before nailing. Many of our patients travel a long distance and arrive in a state of severe shock, or several days after injury. Such a waiting period allows time for supportive treatment and for the subsidence of swelling. We have been severely criticized for this delay, but the following instance illustrates its value. A vigorous young truck driver sustained bilateral comminuted fractures of the femur. Skeletal traction was applied, and twenty-four hours after injury he had a left hemiplegia and lapsed into coma. Unfortunately, his eye grounds were poorly visualized. In spite of no loss of consciousness at the time of the accident, a hematoma was suspected. Burr holes and a right parietal flap revealed no hematoma. He had become rational by the end of three weeks, when the femurs were nailed. Had the fractures been nailed just prior to this episode, which was thought to be fat embolism, the increment of fat might have proved fatal. Dr. Rush depends on the spring of the nail for fixation. We depend on the rigidity of the nail and its spanning of the medullary canal to control displacement. The first nails had an eye patterned after the nails of Küntscher. To insert the nail retrograde through the fracture site it was necessary first to make a hole in the trochanter with a small osteotome. The more recent diamond shaped nails with a pointed stud can be driven directly up through the medullary canal and through the trochanter without comminution. A minimum of equipment is necessary, namely, one suitable nail and one driver-extractor.

STREPTOMYCIN IN THE TREATMENT OF
INFLUENZAL MENINGITIS

A Study of Ninety Cases, with 96.6 per Cent Recovery

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and
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Prior to the advent of chemotherapy, the mortality of influenzal meningitis varied from 90 to 100 per cent. The status of the disease has been altered considerably by the use of sulfonamides and type B anti-influenzal rabbit serum. The introduction of streptomycin marked another advance. This paper is based on the use of streptomycin in a series of 90 cases of influenzal meningitis.

The 90 cases in this series were consecutive and were seen between Feb. 2, 1946, and July 1, 1949.

CLINICAL ASPECTS

Most of the patients presented the typical picture of meningitis. Individual patients showed considerable variation in the severity of the disease, but most of them appeared critically ill. As is well known, this form of meningitis is essentially a disease of infants and young children. Table 1 shows the age distribution in this group of cases.

The duration of illness before treatment with streptomycin varied from one day to five weeks. As shown in table 4, 63 of the 90 patients were treated within the first eight days of illness. In 16 instances the treatment was delayed for two weeks or longer.

DIAGNOSIS AND TREATMENT

Diagnostic lumbar punctures were performed on all the patients on their admission to the hospital. The diagnosis was confirmed bacteriologically in all cases. In 77 instances the organisms were found both on smear and on culture of the spinal fluid. Seven patients had a positive spinal fluid culture and a negative smear. A positive smear with capsular swelling but negative culture was found in 5 instances. In 1 case the identity of the organism was established by the blood culture. All the organisms but two were identified serologically as type B *Hemophilus influenzae*. The exceptions were a type F strain and an unclassified influenza bacillus identified by cultural characteristics. Streptomycin sensitivity tests were made on fifty strains. These are shown in table 2. The susceptibility to streptomycin of most of the tested organisms is apparent.

Blood cultures were made in 26 cases prior to the institution of streptomycin therapy. These were positive in 18 instances.

All the patients in this series were treated with streptomycin. In 73 cases the antibiotic was given both intramuscularly and intrathecally and in 17 intramuscularly only. In addition, sulfadiazine was used in all but 1 of the cases, the specific rabbit serum was administered to 17 patients and aureomycin to 1 patient. Many of the patients had also received penicillin before the diagnosis was established, and a few received it later when a secondary infection developed. There were considerable variations in the number of intrathecal treatments and in the duration of intramuscular therapy.

The schedule of streptomycin treatment used in the majority of the cases is shown in table 3.

In a recent paper Hoyne and Brown¹ reported a group of 11 cases of influenzal meningitis treated with intramuscular but not intrathecal injections of streptomycin. All these 11 patients recovered, but in 2 of them there were sequelae in the form of deafness in one and facial palsy in the other. In our series 17 patients were treated without intrathecal injection of streptomycin. These patients were similar in all essential respects to the others in the series. The average intramuscular dose of streptomycin in these instances was 1 Gm. a day, and the duration of treatment averaged seven days. All these 17 patients made a complete recovery without any sequelae.

RESULTS

In this series of 90 cases there were 87 recoveries and 3 deaths, a recovery rate of 96.6 per cent. In the vast majority of the cases there was a marked improve-

TABLE 1—Age Distribution in 76 Cases of Meningitis Due to *Hemophilus Influenzae*

Age Yr	No. of Cases
Under 1	23
1 to 3	4
4 to 10	15
13	1
20	1
44	1
61	1
Total	58

TABLE 2—Streptomycin Sensitivity Tests on *Hemophilus Influenzae* Cultures Isolated from Spinal Fluid

Micrograms of Streptomycin per Cubic Centimeter Required to Sterilize a 1 % Dilution of a 5 Hour Culture	No. of Strains
Less than 0.031	0
0.031 to 0.78	12
1.0 to 3.75	34
4.0 to 0.20	3
12.5	1
Over 12.5	0
Total	50

TABLE 3—Streptomycin Schedule in *Hemophilus Influenzae* Meningitis

Age Yr	Intrathecal		Intramuscular	
	Mg. per Injection	No. of Treatments	Gm. per Day	Days of Treatment
Up to 4	0	2-6	0.2-0.5	5-9
Older children and adults	100	3-6	0.5-1	5-9

ment within six days after the institution of streptomycin therapy. Analysis of the data indicates that the duration of the illness previous to therapy did not seem to influence the final outcome. The fatalities were in infants aged 11, 12 and 17 months. Streptomycin sensitivity tests made in 2 of the fatal cases both gave values of 1.56 micrograms per cubic centimeter, which is indicative of pronounced susceptibility. In 1 of the patients, who had also pneumonia and pulmonary edema, death occurred within forty-eight hours of the time that therapy was instituted. In another of the fatal cases the presence of sulfonamide intoxication was suspected though not proved. The third patient, a 1 year old female infant with congenital heart disease, was treated with a combination of streptomycin, sulfadiazine and the specific serum. At first the child

From the Bureau of Laboratories, New York City Health Department.
Read before the Seventy-Seventh Annual Meeting of the American Public Health Association, New York, Oct. 28, 1949.

1. Hoyne, A. L. and Brown, R. H. Intrathecal Therapy. Not Required for *H. Influenzae* Meningitis. Report of Twenty-Eight Cases. J. A. M. A. 138: 597-601 (Feb. 28) 1948.

showed improvement, but after a long course, during most of which she was afebrile, she ultimately succumbed. It is possible that the associated conditions, present in the 3 fatal cases, were factors contributory to death.

Spinal Fluid Changes During the Course of Treatment—With the institution of streptomycin therapy, fairly prompt disappearance of the organisms was noted in a vast majority of the cases. In 69 instances the spinal fluid became sterile within four days. The return of the spinal fluid sugar level to normal was less prompt, although in 50 cases this change occurred within seven days. In a few instances the infection appeared to be well under control before the level returned to normal. It may also be of interest to note that in 13 cases the level was normal when the streptomycin treatment was started.

Determinations of the concentration of streptomycin in the spinal fluid were made in 59 cases and in the blood in 21 instances. The blood levels varied from 1 to 800 and the spinal fluid levels from 2 to 150 micrograms per cubic centimeter. These concentrations could not be correlated with the clinical results.

Complications—In 5 of the patients the disease was complicated by otitis media with or without mastoiditis. A mastoidectomy was performed in 2 of these patients. Pneumonia was encountered five times. In 5 of the patients serum reactions developed, four of which were

The fact that its administration by the combined intramuscular and intraspinal routes resulted in the recovery of 70 out of 73 patients is ample evidence that this method is highly effective. On the other hand the results were exceedingly impressive when the streptomycin was given intramuscularly but not intraspinally to a group of 17 patients, all of whom recovered without sequelae. Obviously, the treatment of the disease with intramuscular but without intrathecal administration of streptomycin merits further trial.

With regard to adjuvant therapy, it was difficult in our study to evaluate properly the contributory role of the sulfadiazine, which was used in all but 1 of the cases. However, since sulfadiazine alone is frequently effective against the influenza bacillus and since there is some evidence that the addition of this compound aids in preventing the development of streptomycin fastness, it would seem at present advisable to use the combined therapy.

As mentioned previously, specific anti-influenza serum was used in only 17 instances, 12 of which were among the earlier cases in the series. In 2 patients the meningeal infection appeared to be under control at the time the serum was administered. In 5 cases the total amount of serum given was 50 mg or less, which may be regarded as inadequate. In the remaining 10 cases the pattern of response did not appear to be altered by the addition of the serum. It is our opinion, there-

TABLE 4—Duration of Illness Before Streptomycin Therapy

Days before therapy	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	22	27	28	29	30	5 Wks	Unknown
Number of cases	2	13	11	11	9	5	6	6	1	5	1	1	2	2	3	4	2	1	1	1	1	1	1

immediate. One of the cases was complicated by hepatitis, another by iridocyclitis and a third by a gluteal abscess.

Toxic Reactions—A skin rash appeared in 3 cases, in 2 of which there was also fever. In several cases there were episodes of fever, usually low grade, that could not be definitely explained. Some of these may have been due to drug toxicity. In 2 other cases the fever was probably a streptomycin reaction, since a sharp fall in the temperature followed the withdrawal of the antibiotic. A typical picture of encephalopathy, with coma, impairment of hearing and vision and paresis of a hand, occurred in 1 instance. The symptoms in this case cleared up when the use of streptomycin and sulfadiazine was discontinued. In 1 patient temporary paresis of the right arm developed, which may have been due to intrathecal administration of streptomycin. There was 1 instance of ataxia, due, probably, to vestibular disturbance.

Sequelae—Nine of the patients in this series showed sequelae, most of which were of a serious nature. Deafness, partial or complete, was found in 4 patients, 1 of whom had also hydrocephalus and defective vision. There were 3 additional cases with impairment of vision and another instance of hydrocephalus. In 2 of the cases with blindness there was also mental impairment. A slight hemiparesis, affecting the left side, was the residual in a patient who had not received streptomycin intraspinally.

COMMENT

It is clear from this study that streptomycin is an effective agent in the treatment of meningitis due to *Hemophilus influenzae*. The best method of using this valuable drug, however, still remains to be determined.

fore, that serum is not necessary when the patient receives adequate streptomycin therapy in conjunction with sulfadiazine. In this connection it may be noted that the recent introduction of aureomycin has added another agent whose usefulness in the treatment of influenzal meningitis merits investigation.

It is particularly noteworthy that in this series there were relatively few toxic reactions. Since all but 1 of the patients had received combinations of therapeutic agents, the difficulty in attributing a particular reaction to the precise drug is apparent.

The occurrence of sequelae constitutes a serious problem. It is necessary to emphasize that neurologic sequelae can be, and usually are, the direct result of the meningeal infection. To what extent, if any, the therapy contributes toward the development of such residua is a matter of speculation. Although involvement of the eighth nerve has been known to follow the use of streptomycin, it is nevertheless important to bear in mind that impairment of hearing can be a sequel of any form of meningitis, regardless of the type of treatment. The absence of residua in the small group of 17 patients treated with intramuscular but without intraspinal administration of streptomycin may well be a factor of major importance. It may also be of interest to note that there was no increase in the frequency of sequelae among patients in whom treatment was delayed. The various aspects pertaining to neurologic residua require further study.

SUMMARY

In 90 consecutive cases of meningitis due to *Hemophilus influenzae* streptomycin was given intramuscularly and intrathecally to 73 patients and intra-

muscularly only to 17 patients. In addition, sulfadiazine was used in all but 1 of the cases and the specific rabbit serum was administered to 17 patients and aureomycin to 1 patient. Of the 90 patients, 87 recovered and 3 died, a recovery rate of 96.6 per cent. The 17 patients treated with intramuscular but without intraspinal injections of streptomycin recovered completely. With regard to the adjunctive therapy, it was difficult to evaluate the role of sulfadiazine. There was no evidence that rabbit serum played a contributory role. There were relatively few toxic reactions in the series, and neurologic residua occurred in a small number of the cases. Several important problems require further investigation, particularly those pertaining to the occurrence of sequelae and the method of choice in streptomycin therapy.

VENTRICULAR FIBRILLATION PRECIPITATED BY CARDIAC CATHETERIZATION

Complete Recovery of the Patient After Forty Five Minutes

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VICTOR A. McKUSICK, M.D.
E. CONVERSE PEIRCE II, M.D.
and
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We propose herein to report a case of ventricular fibrillation precipitated by cardiac catheterization, with complete recovery of the patient after forty-five minutes.

REPORT OF CASE

History—E. F., a white woman aged 25, was admitted to the Cardiovascular Clinic Nov. 27, 1949, with complaints of dizzy spells and fainting of eight months duration following pregnancy. Pulmonary tuberculosis was diagnosed in 1931, when she was 7 years of age, but was considered arrested after four years treatment, for this reason the patient did not subsequently engage in any vigorous activities. In 1941 when she was 19, she was told that she had a heart murmur but that it was of no significance. There was no history of rheumatic fever. She stated that her pulse and blood pressure readings had always been difficult to obtain in her upper extremities but that she had been well until her first pregnancy which terminated spontaneously at full term in July 1946. At that time she had severe but transitory pain in the left side of her neck posteriorly, radiating to her head. Her second pregnancy terminated normally in April 1949. During labor she noted pain identical to that of the previous pregnancy. After an uneventful spontaneous delivery while she was under ether anesthesia, she "went into shock." A laparotomy was performed because rupture of the uterus was suspected, but no abnormalities were found. The woman remained in a shocklike state for five or six days, then she regained consciousness. She was discharged well but three weeks after delivery began to have episodes of pain in the right posterior part of the neck, radiating to the occiput. These episodes lasted from a few minutes to an hour, every two or three days, gradually becoming less frequent up to the time of admission. About four weeks after delivery she began to feel weak and dizzy on arising in the morning or when standing up quickly. On several occasions she experienced brief periods of unconsciousness. In the eight months preceding admission there were frequent episodes of dyspnea during the day, not definitely related to activity, and infrequent occurrences of nocturnal dyspnea.

Physical Examination—The patient was a well developed, well nourished young woman who did not appear ill. There was no

edema, cyanosis or pallor. The heart was normal in size and outline to percussion, retromammary dullness was not increased. Heart sounds were clear, rate and rhythm were normal. With the patient in the sitting position there was a loud rough blowing systolic murmur with a gentle diastolic component heard well at the pulmonary area and even more prominently above the left clavicle. It was transmitted up the left side of the neck and was accompanied with a thrill, systolic in time. Rising from the recumbent to the sitting position produced a rise in pulse rate from 80 to 130. Carotid artery pulsations could not be felt. The left radial pulse was weak and inconstant, the right was not palpable. The femoral, dorsalis pedis and posterior tibial pulses were normal bilaterally. A blood pressure reading could not be obtained in the right arm but was 120 mm of mercury systolic and 90 mm diastolic in the left arm and 150 mm systolic by palpation in each leg.

Laboratory Examinations—Results of the following laboratory procedures were reported within normal limits: blood cell count, hematocrit, serologic tests for syphilis, blood urea nitrogen, fasting blood sugar and urinalysis. An electrocardiogram shortly after admission showed only a prolonged Q-T interval. A roentgenogram of the chest showed clear lung fields with the right side of the diaphragm high in the midsection, suggesting congenital anomaly. The heart was not enlarged, the pulmonary artery was prominent. Barium mixture passed freely through the esophagus without showing displacement by the heart. Fluoroscopy demonstrated a somewhat prominent pulmonary artery, with slight hilar dance on the right. The heart did not appear grossly enlarged or abnormal in contour. An angiogram showed a dilated pulmonary artery and a distinctly abnormal aorta. At the proximal end of the transverse arch, one branch of the aorta was visualized. This branch was not large, but just beyond it the aorta immediately became much narrower. High in the descending aorta a convex shadow suggesting the infundibulum of a patent ductus arteriosus was seen. Beyond this point there was another diminution in the size of the aorta, and it was distinctly small at the lowest visible point.

Cardiac Catheterization—In order to determine the presence or absence of left to right shunt, cardiac catheterization was performed Dec. 1, 1949. For arterial blood samples and pressure determinations, a 0.030 inch (0.076 cm) (inside diameter) polyethylene tube was inserted percutaneously through a 15 gage needle into the right femoral artery. A 6 F Courmand cardiac catheter was introduced percutaneously through a 12 gage needle into the left femoral vein, since the arm veins were unsatisfactory.

Under fluoroscopic and direct-writing electrocardiographic control the catheter was advanced without difficulty into the right ventricle. A few ventricular ectopic beats occurred, but these disappeared after ten or fifteen seconds. The cardiac mechanism seemed entirely normal for about three minutes, during which time intermittent electrocardiographic observations were made. At this point the patient became acutely anxious, uttered a piercing cry, became unconscious and deeply cyanotic and had generalized convulsive movements accompanied with slow stertorous respiration. The electrocardiogram showed ventricular fibrillation (fig. 1).

The cardiac catheter was immediately withdrawn to the vena cava, and resuscitative measures were instituted as rapidly as possible, the first being manual compression of the chest. Approximately two minutes after onset of fibrillation, 5 cc. of 1 per cent procaine hydrochloride solution was injected into the inferior vena cava through the cardiac catheter. Within three minutes, administration of 100 per cent oxygen was begun with a mask while manual compression of the chest continued. Between five and ten minutes after onset of ventricular fibrillation, an incision 15 cm long was made in the left seventh interspace, centered over the anterior axillary line, and manual cardiac compression at the rate of 50 to 70 contractions per minute was then carried on continuously, except during the defibrillating attempts described later, for thirty-five minutes. Shortly after institution of cardiac compression, ten to fifteen minutes after onset of fibrillation, artificial respiration by manual compression was replaced by an automatic respirator. This

From the Cardiovascular Clinic (Clinic of General Medicine and Experimental Therapeutics of the National Heart Institute, Division of Hospitals, United States Public Health Service), United States Marine Hospital.

device,¹ employing a Burns valve, delivered 100 per cent oxygen at 20 cycles per minute and at a positive pressure alternating from 1 to 10 cm of water

Between the fifteenth and fortieth minutes after the onset of ventricular fibrillation, and while artificial respiration and cardiac compression were being continued, five shocks were administered to the heart with a defibrillating apparatus. For the first shock the electrodes were placed directly on the left

ness was rapid, and thirty minutes after reversion the patient had a good color, blood pressure of 140 mm of mercury systolic and 90 mm diastolic, and pulse rate of 120, she was sufficiently rational to answer simple questions

Oxygen was administered by nasal catheter for three days. Large doses of penicillin and streptomycin were given prophylactically, and small amounts of phenylephrine hydrochloride (neosynephrine®) were injected intravenously at intervals to support blood pressure. Intravenously given fluids and an additional 500 cc. of whole blood were administered during the first three days. For seventy-two hours blood pressure readings were taken through the femoral artery catheter by means of a Sanborn electromanometer. Pressures ranged from 140 systolic and 94 diastolic to 88 systolic and 60 diastolic, averaging approximately 120 systolic and 70 diastolic. The pulse rate gradually climbed to 160 on the second day and then fell slowly to the patient's normal level. The temperature rose to 102.2 F on the second day and fell to normal by the fourth. Fluid intake was 3,600, 2,900 and 2,600 cc in the first three days, while corresponding urinary outputs were 2,960, 2,330 and 2,160 cc. Five hundred cubic centimeters of serosanguineous fluid drained from the left side of the chest in the first twenty-four hours. About nine hours after reversion of the cardiac rhythm to normal the initial urine specimen was obtained by catheterization of the bladder (volume 300 cc, clear, dark, acid, specific gravity 1.026, 40 mg of albumin per hundred cubic centimeters, 8 to 10 granular casts per low power field and some cylindroids). Subsequently, normal urine was voided spontaneously.

Immediately after reversion the patient was somewhat disoriented, slept a great deal and complained of generalized pain. She was always rational and cooperative and soon became

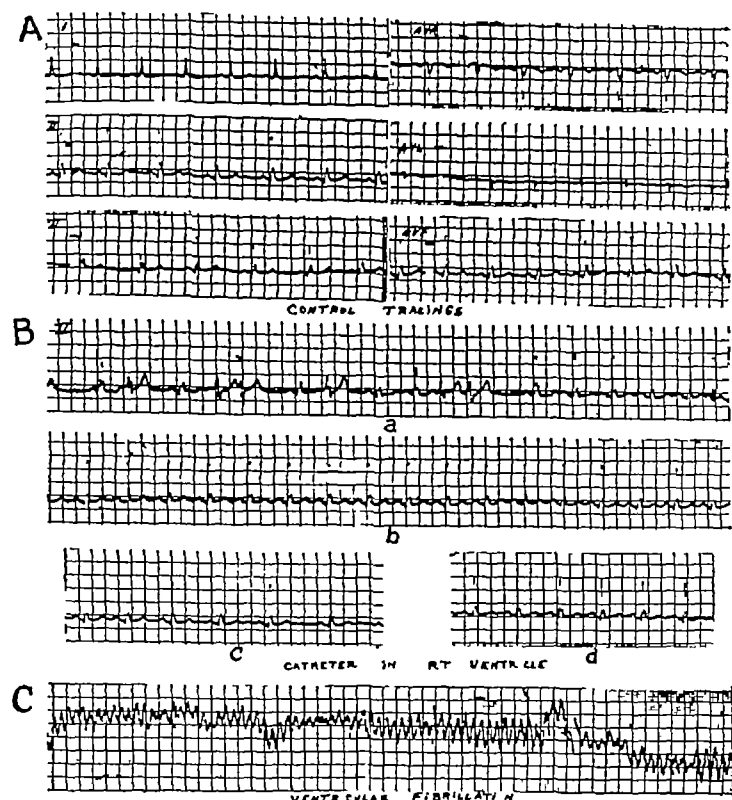


Fig 1—A the top three strips are control electrocardiographic tracings before catheterization. They are normal except for slightly long duration of the QT interval. B tracings a through d are intermittent recordings of lead 2 after introduction of the catheter into the right ventricle, a shows a rapid sinus rate and numerous ventricular extra systoles probably arising from at least two different foci. C the bottom strip, recorded shortly after the onset of ventricular fibrillation, shows a rate of approximately 575 per minute.

ventricular pericardium, the remaining shocks were delivered with one electrode on the left ventricular pericardium and with one electrode on the anterior chest wall. The first four shocks were of 135 volts and of one-half to one second's duration. The fifth shock was one second in duration at 100 volts. Each shock was accompanied with a generalized tetanic convulsion. Near the end of this period 20 cc of 1 per cent procaine hydrochloride solution was injected directly into the heart. These measures were not effective (fig 2).

After the fifth shock and the fortieth minute, 2 cc of solution lidocaine hydrochloride (xylocaine hydrochloride)² 1 per cent in epinephrine hydrochloride 1:100,000 was injected directly into the left ventricle. The sixth shock—135 volts and one second's duration with electrodes on the precordium and ventricular pericardium—induced a transitory reversion to something resembling normal rhythm (fig 3). Five cubic centimeters of the 1 per cent lidocaine-epinephrine 1:100,000 solution was injected directly into the left ventricular cavity. The seventh shock—135 volts, one and one-half seconds' duration—was followed by sinoauricular rhythm, rate 137, forty-five minutes after onset of ventricular fibrillation (fig 4).

Course—Since the cardiac contractions were not strong immediately after reversion, they were reinforced for approximately five minutes by manual compression of the ventricles during systole. The chest wound was closed with catheter drainage without anesthesia, and 500 cc of whole blood was given intravenously. Recovery of motor function and conscious-

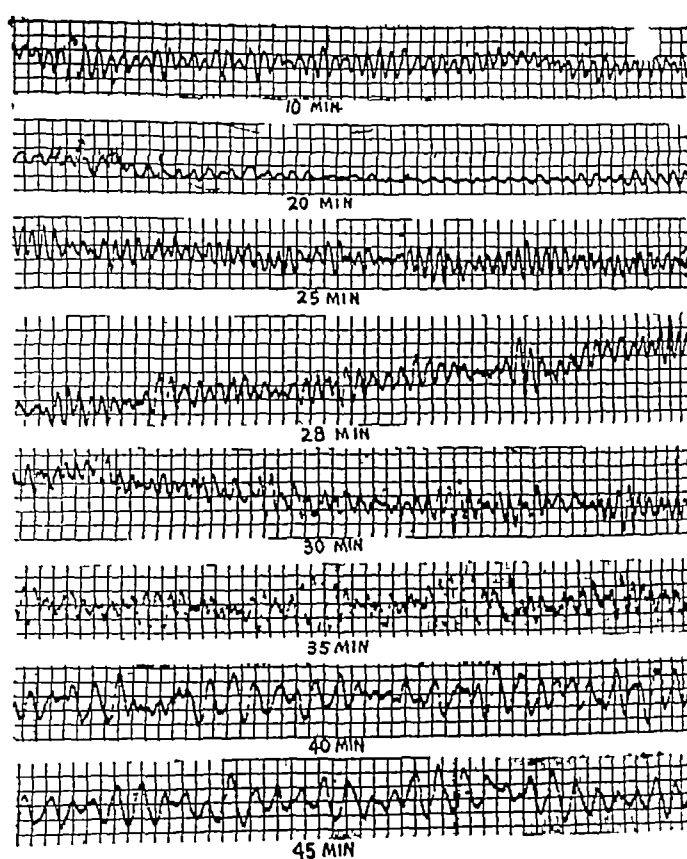


Fig 2—These are samples of continuous electroencephalographic tracings taken during forty-five minutes of ventricular fibrillation. Total time of fibrillation was fairly accurately indicated by the length of tracing accumulated. The principal trend observed is slowing of the rate of electrical activity from about 575 to about 180 per minute. The time shown beneath each tracing is the approximate time after the onset of fibrillation.

cheerful but had a memory defect embracing the first two days of recovery. Neurologic examination disclosed no abnormalities, and the patient's mentality, which was good, appeared entirely normal. There were no postoperative complications. The wound healed per primam, and the patient was discharged well on Dec 20, 1949, to return at a later date for further

¹ Pneophore,® manufactured by Mine Safety Appliance Corporation, Pittsburgh.

² Supplied for clinical trial by Astra Pharmaceutical Products, Inc., Worcester, Mass.

study and treatment Primary discharge diagnoses were patent ductus arteriosus and a congenital anomaly of the vessels arising from the aortic arch

COMMENT

Electrocardiograms—The control tracings shown in figure 1A were within normal limits, although the duration of the Q-T interval was still at the upper limit

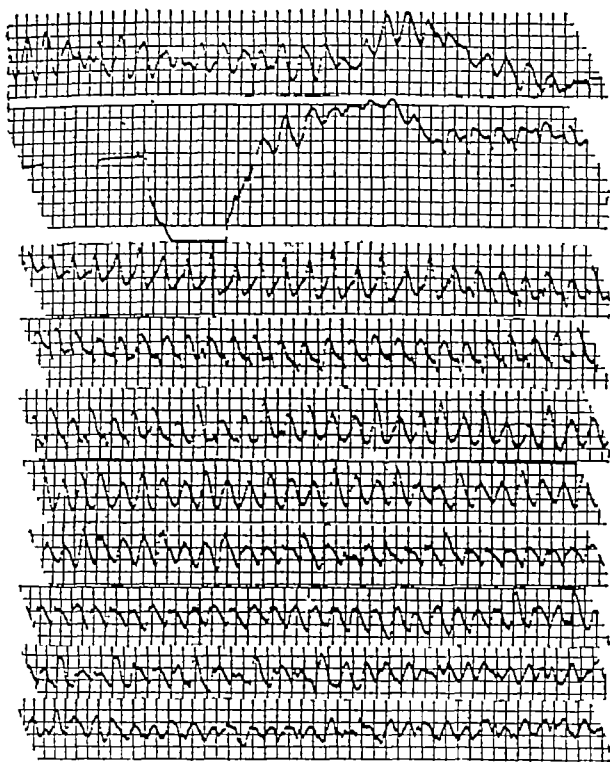


Fig 3—These continuous tracings from lead aVR show temporary reversion to normal rhythm after the sixth electric shock (second strip). There is return however to a less regular pattern.

of normal. The tracings marked B (a through d) comprise four short observations while the catheter was in the right ventricle, a was recorded shortly after the catheter had passed the tricuspid valve and shows numerous ectopic ventricular beats. Later these disappeared (b, c and d). Electrocardiographic tracings were not being made at the moment of onset of ventricular fibrillation. However, the record marked a in B of figure 1 shows a prefibrillatory pattern, consisting of an acceleration of the ventricular rate with many extrasystoles of multifocal origin.³ Ventricular fibrillation at the time of onset was at a rate of about 575 per minute (fig 1C).

Figure 2 shows the appearance of ventricular electrical activity over the course of forty-five minutes while ventricular fibrillation was present. The most important feature is the trend toward slowing of the rate of ventricular activity until, in the records taken just before reversion, the rate is only about 175.

Figures 3 and 4 are continuous recordings of lead aVR covering the period of reversion. In the second strip of figure 3, where the writing arm was driven off the paper, the sixth electric shock was applied to the heart. Immediately after this there was reversion to a pattern of more normal appearance with clearly dis-

cernible complexes arising probably from some focus in the ventricle. As seen in the third strip, however, this regular pattern escaped into a coarser one resembling ventricular flutter.⁴ There is a temporary return of the previous pattern, but then the coarse flutter or fibrillation again appears. Finally, in figure 4 near the beginning of the next to the last strip, the seventh electric shock was applied. This resulted in almost instantaneous and permanent reversion to sinoauricular rhythm with a rate of about 135 per minute. P waves are clearly discernible following the T waves. The P-R interval may be slightly prolonged. It is interesting that there is electrical alternans for the first seven beats following reversion. Figures 5 and 6 show the electrocardiographic picture in the two hours and fifteen minutes after reversion to sinoauricular rhythm. There was an elevation of the S-T segment for thirty minutes. Lampson, Schaeffer and Lincoln⁵ likewise observed S-T segment shifts immediately after reversion. The electrocardiograms showed flat T waves in the standard limb leads for several days, but five days after the episode the electrocardiogram was back to a normal picture except for sinus tachycardia. In fact, duration of the Q-T interval was now normal.

Ventricular Fibrillation as an Accident of Cardiac Catheterization—In this clinic, where catheterizations are done under direct-writing electrocardiographic control, the experience has been that ventricular ectopic beats are invariable when the tip of the catheter enters the right ventricle from the auricle and when the catheter is withdrawn from the pulmonary artery to the ventricle. Runs of five or more ectopic ventricular beats are not uncommon. Extrasystoles are not common when the catheter is in the pulmonary artery, even though it passes through the ventricle, although we have observed them when the patient coughs or when the catheter is introduced as far as possible in order to occlude a radicle of the pulmonary artery. Such extrasystoles are presumably due to irritation of the endocardium by the side of the catheter. Ventricular

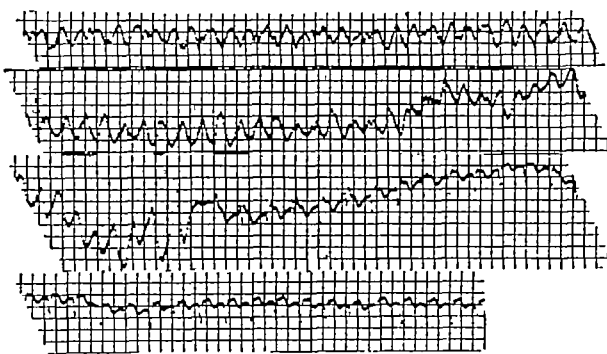


Fig 4—Lead aVR continued from figure 3 here shown reversion of ventricular fibrillation (return to normal rhythm) after the seventh electric shock (second strip).

fibrillation in the case reported here was probably due to endocardial irritation.

Resuscitation—The importance of the several factors in the cardiac resuscitation has recently been empha-

3 Schwartz, S. P. Transient Ventricular Fibrillation. Study of Electrocardiograms Obtained from Patient with Auriculoventricular Dissociation and Recurrent Syncopal Attacks. *Arch Int Med* 49: 282 (Feb) 1932.

4 Gertz, G., Kaplan, H. A., Kaplan, L., and Weinstein, W. Cardiac Syncope Due to Paroxysms of Ventricular Flutter and Fibrillation and Asystole in a Patient with Varying Degrees of AV Block and Intra-ventricular Block. Report of a Case. *Am Heart J* 16: 225 (Aug) 1938.
5 Lampson, R. S., Schaeffer, W. C., and Lincoln, J. R. Acute Circulatory Arrest from Ventricular Fibrillation for Twenty Seven Minutes with Complete Recovery. *J A M A* 137: 1575 (Aug 28) 1948.

sized by Beck and Rand⁶ and by Wiggan, Saunders and Small⁷. Both adequate oxygenation and circulation of the blood must be maintained until normal cardiac and respiratory action can be restored. Although some degree of oxygenation of the blood was apparently maintained for a relatively protracted period of time by

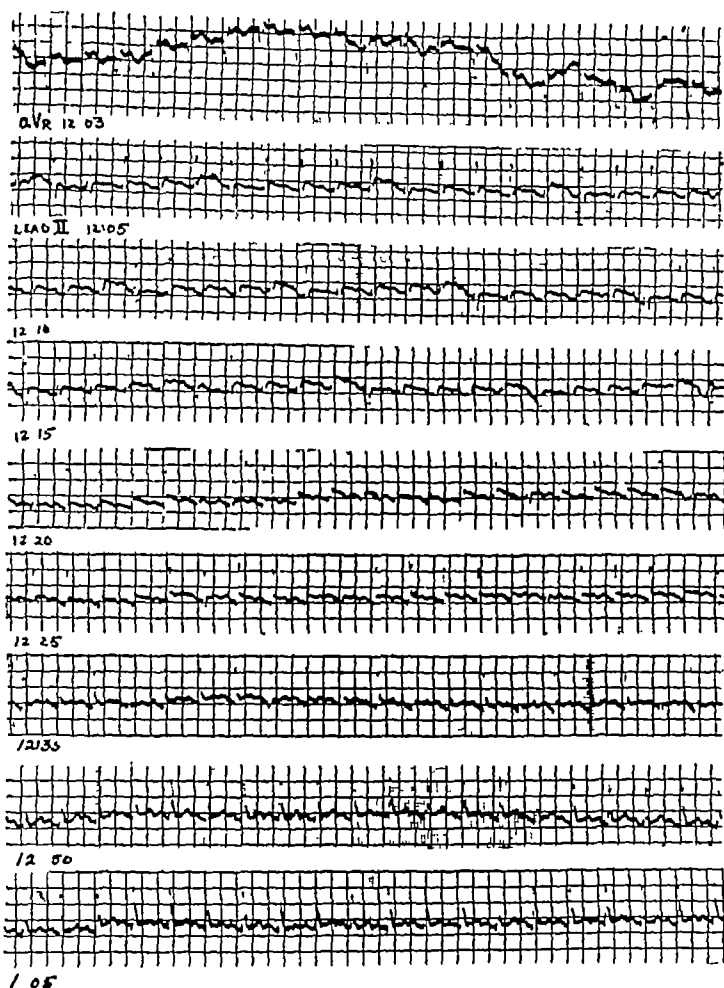


Fig 5—Sample tracings during the first hour after reversion. All except the first strip are lead 2. Elevation of the ST segment persisted for about twenty-five minutes after reversion.

manual compression of the chest in our case, immediate use of an endotracheal tube and a respirator for administration of oxygen should be made whenever possible. The relatively inexpensive Burns valve apparatus was effective in this instance and was found to be technically simple in difficult circumstances.

The effectiveness of cardiac compression in maintaining the circulation was pointed out thirty years ago by Gunn⁸ and has been repeatedly confirmed in man⁹. There seems to be general agreement that massage from below the diaphragm is ineffective. With regard to the type of thoracic incision, the important consideration is that adequate access to the heart be provided. It is encouraging to note that an 8-glove-size hand can be thrust through an anterolateral thoracic incision, although rib retraction is soon necessary since other-

wise the ribs exert painful pressure against the hand and wrist of the operator.

In the case reported here, two types of defibrillating measures were employed. First, procaine hydrochloride and a similar substance, lidocaine hydrochloride were injected intracardially, second, electric shock was applied. It is our impression that reversion was due to a combination of these two measures. It seems significant that five shocks relatively early in the course of events were ineffective. Later, after more procaine and after lidocaine had been given, shock was effective. The slowing of rate of fibrillation was progressive over the course of the forty-five minutes. This slowing may have been due to the drugs administered. However, that it was due in part or entirely to progressive myocardial anoxia cannot be excluded.

The electric defibrillator which we used was intended for emergency resuscitation of dogs undergoing cardiac operations. It consists of a variable voltage transformer (peak voltage 135, rating 5 amperes), two lead wires and two electrodes. A peak voltage of 135 of sufficient intensity and duration to render the entire ventricular musculature refractory may be used to revert ventricular fibrillation¹⁰. Low voltage shocks, or shocks of short duration or low intensity, will not only fail to effect reversion but will actually precipitate ventricular fibrillation in dogs. A variable voltage transformer was chosen as the easiest means of securing 135 volts, but a transformer with a fixed voltage would probably be safer and simpler for occasional emergency resuscitation. The amperage need not be specifically regulated, since it is determined by the size and composition of the electrodes. In the apparatus we used the electrodes consisted of 0.5 mm thick sheet aluminum disks, 3.6 cm in diameter. These were applied directly to the heart and to the precordium with some arcing. The amperage delivered to a human heart by this equipment is not known, but it is believed that aluminum is not the material of choice and that the electrodes are considerably smaller than the optimal. Beck and Rand⁶ have suggested that silver electrodes approximately 6 cm in diameter are satisfactory for human use.

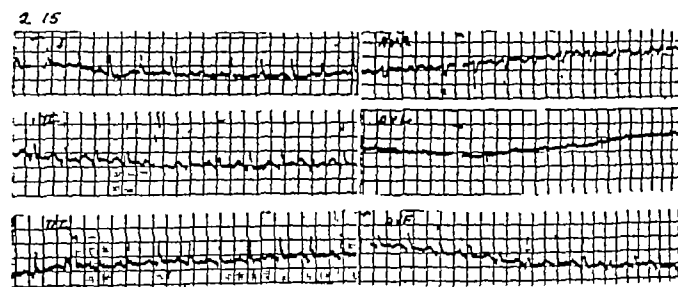


Fig 6—Approximately one hundred and thirty-five minutes after reversion to sinoauricular rhythm the limb leads show sinus tachycardia and flat to inverted T waves. The PR interval is at the upper limit of normal.

SUMMARY

A case of ventricular fibrillation as a complication of cardiac catheterization is reported. Effective oxygenation was maintained by cardiac compression and artificial respiration. Normal rhythm was restored after administration of procaine hydrochloride, lidocaine hydrochloride (xylocaine hydrochloride) with minute amounts of epinephrine and electric shock. The patient recovered completely after at least forty-five minutes of ventricular fibrillation.

10 Morgan, R. H. Personal communication to the authors.

6 Beck, C. S., and Rand, H. J., III. Cardiac Arrest During Anesthesia and Surgery, *J. A. M. A.* 141: 1230 (Dec 24) 1949. Beck, C. S., Pritchard, W. H., and Feil, H. S. Ventricular Fibrillation of Long Duration Abolished by Electric Shock, *J. A. M. A.* 135: 985 (Dec 13) 1947.

7 Wiggan, S. C., Saunders, P., and Small, G. A. Resuscitation, *New England J. Med.* 241: 370 (Sept 8) 1949.

8 Gunn, J. A. Massage of Heart and Resuscitation, *Brit. M. J.* 1: 9 (Jan 1) 1921.

9 Ruzicka, E. R., and Nicholson, M. J. Cardiac Arrest Under Anesthesia, *J. A. M. A.* 135: 622 (Nov 8) 1947. Adams, H. D., and Hand, L. V. Twenty Minute Cardiac Arrest with Complete Recovery. Principles of Prevention and Treatment, *ibid.* 118: 133 (Jan 10) 1942. Lampson, Schaeffer and Lincoln⁵. Beck and Rand⁶. Wiggan, Saunders and Small⁷.

TREATMENT OF HYPERTENSION

Experiences with the Use of a Low Sodium Diet Other Than
the Rice Diet A Preliminary Report

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Physicians have been restricting sodium chloride in the diets of patients with hypertension with varying degrees of enthusiasm since 1904¹. Apparently as early as the turn of the century this dietary restriction was under active consideration in Europe but it was not until 1922 when Allen and Sherrill² reported satisfactory results in a series of 180 patients that we hear of this treatment in the United States. The method was not generally accepted by members of the medical profession, however, and contemporary reports of

regimen was low not only in sodium (200 mg) but also in protein (20 to 25 gm) and fat (5 gm). In spite of his favorable results, many physicians hesitated to employ a treatment which violates the conventional pattern of nutrition. Moreover, it was difficult to induce many patients to accept the monotony of the diet. Today these objections are superseded by the opinions of many investigators³ that the rice and fruit juice treatment is effective solely because of its low sodium content. Recently a few workers, notably Grollman,⁴ Perera and Blood⁵ and Bryant and Blecha,⁶ have treated groups of hypertensive patients with a diet low in sodium but adequate in other respects. All these reports indicate favorable results, but to date the total number of patients treated is small. It is our hope to observe over a five year period a large number of patients with hypertension whose diets are restricted in sodium only. For the past twenty months in the Hypertension Clinic of the Wadsworth General Hospital we have been treating a number of patients in this manner. Inasmuch as the time interval is still short and the number of patients small, this report must of necessity be a preliminary one.

TABLE 1—Low Sodium Diet of 2400 Calories (Approximately 200 Milligrams)

Food	Amount		Sodium Mg	Potassium, Mg	Protein Gm	Fat Gm	Carbo- hydrate Gm	Calories	Ca Mg
	Wt Gm	Measure							
Meat cooked	120	4 oz	70 to 120	370 to 600	29	16	—	230	10
Egg	50	1	40 0	100	6	6	—	80	30
Peanuts	(1)	30 to 35 nuts	1.0	444	16	26	14	326	44
Fruit									
1 citrus	100	½ cup	0.5	200	1	—	11	50	20
2 others	200	¼ cup each	1 0 to 10	100 to 400	1	—	30	130	90
Vegetables	200	2 servings ½ cup each	2 0 to 24	580 to 1 000	5	—	15	80	40
Potato or substitute	200	2 servings ¾ cup each	9 0 to 4	130 to 530	4	—	23	170	20
Cereal	90 dry	½ cup cooked	0 2 to 1	19 to 100	3	1	15	80	10
Bread	0	slices	9 0 to 1	120	7	3	45	240	30
Butter	50	3 pats	2.5	2	—	40	—	360	—
Salt free milk ¹⁴	480	1 pint	0 0	637	17	13	24	320	540
Fruit juice	400	2 ½ lns	2 0 to 12	400 to 800	1	—	49	204	40
Jelly	40	2 tbs	2 0	11	—	—	25	110	—
Total			108 2 to 247 0	3 318 to 5 144	90	110	260	2 430	804

* Bills C E, McDonald F G, Niebermeier W and Schwartz M C. Sodium and Potassium in Foods and Waters. J Am Dietet A 27:301 1949. United States Veterans Administration Diet Manual M10-4 Washington D C Government Printing Office 1948. Part III Adaptation of Short Method of Dietary Analysis. Donelson, E G and Leichsenring J M. Food Composition Table for Short Method of Dietary Analysis (revised). J Am Dietet A 41:440 1945. Bowes A deP and Church C F. Food Values of Portions Commonly Used ed 6 Philadelphia Anna dePlanter Bowes 1946.

smaller series of cases³ did not confirm Allen's original results. In 1928 Addison⁴ pointed out that it was the sodium ion in the restriction of sodium chloride which was the effective agent.

In 1944 with Kempner's report⁵ of satisfactory results with a rice and fruit juice diet there was a rebirth of interest in the dietary treatment of hypertension. It was evident, however, that the Kempner

METHOD AND MATERIAL

The majority of the patients in this study were referred to the Hypertension Clinic from the various wards of the hospital. A few are from the private practice of one of us (M J K). A patient was included in the study if his base line blood pressure was 170 systolic and 100 diastolic or over, regardless of the etiologic factor, unless surgically remediable. Once selected, the patient is subjected to a work-up which includes, in addition to the hospital routine, an electrocardiogram, roentgenogram of the heart, fundus examination by the Department of Ophthalmology, renal function tests and determinations of blood chlorides, sodium, potassium and frequently calcium. Blood pressure is determined

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6 Selye H. The General Adaptation Syndrome and Disease of Adaptation J Clin Endocrinol 6:117 1946. Schroeder H A. Low Salt Diets and Arterial Hypertension Am. J. Med. 4:578 1948. Dietary Therapy of Hypertension editorial J A M A 137:147 (May 8) 1948. 7 Grollman A. Sodium Restriction as a Dietary Measure in Hypertension J Am Dietet A 22:864 1946. 8 Perera G A and Blood, D W. The Relationship of Sodium Chloride to Hypertension J Clin Investigation 26:1109 1947. 9 Bryant J M and Blecha E. Low Sodium Forced Fluid Management of Hypertensive Vascular Disease and Hypertensive Heart Disease Proc Soc Exper Biol & Med. 65:227 1947.

daily for at least ten days, and the lowest is considered the pretreatment level. In some instances Veterans Administration charts of many years' standing are available to substantiate the presence of hypertension.

The diet used in this study is based on the 200 mg sodium regimen devised by Newburgh.¹⁰ It has been

added in the form of the diphosphate. Some of the patients take vitamins in addition, although, as table 2 illustrates, the diet satisfies vitamin requirements.

Table 3 demonstrates the wide selection of food permitted by the diet. While the patient is still in the hospital he and the household cook are instructed in the proper utilization of these varieties of food and in intelligent use of the condiments listed. After the patient has obtained an adequate understanding of the diet he is discharged to the convalescent wards of the hospital or returns home. He is seen subsequently every two to four weeks in the Hypertension Clinic.

On each return visit to the clinic the patient's course is evaluated by the physician on a special chart where symptoms, blood pressure readings and the results of tests are recorded. An estimation of the twenty-four hour chloride excretion is then performed by the dietitian. This simple test¹² consists of titrating 10 drops of urine and 1 drop of 5 per cent potassium chromate with 2.9 per cent silver nitrate solution until a reddish color change is obtained. Each drop of silver nitrate used represents approximately 1 Gm of sodium chloride excreted per twenty-four hours. Recently we adopted a modification of the test,¹³ but the principle is essentially the same. Some patients perform their own tests at home and bring in charts of their results for discussion of any apparent dietary indiscretion. The dietitian then proceeds in detective-like fashion to ferret out the excess sodium by reviewing all foods eaten by the patients.

The 200 mg sodium trays in the hospital are also under repeated surveillance, and from time to time the sodium content of a sample day's diet is determined by the flame photometer method. Table 4 is an example of some of the results obtained.¹⁴ We are not surprised occasionally to find that the sodium content is excessive, and it is only by repeated checking that the diet can be kept in the desired sodium range. Furthermore, it is our impression that a well instructed patient at home can more closely approximate a 200 mg sodium diet than is possible in a hospital kitchen.

Although there is no general agreement¹⁵ as to the effect of weight loss in hypertension, it seems important to us to take into account any significant weight reduction by the patients in this series. At first, a 1,200 calory low sodium diet was prescribed for obese patients, but recently such patients have not been placed on sodium restriction until their optimum weight is approached by means of a regular low calory diet. Since much of the data accumulated thus far pertains to simultaneous weight reduction and sodium restriction, we have considered it necessary to indicate in our results when significant weight loss (10 pounds [4.5 Kg] or more) has occurred. However, we will not at this time attempt to evaluate the influence of such weight loss.

RESULTS

No patient was included who has been on the diet for less than three months, and although we have observed over 100 patients in the clinic, we will at this

TABLE 2—Total Value of Daily Food Allowance on 2,400 Calory Low Sodium Diet (Approximately 200 Milligrams)

Phosphorus	1,546 mg
Iron	15.6 mg
Vitamin A	4,230 I U
Thiamine	1.42 mg
Riboflavin	1.37 mg
Nicotinic acid	22.5 mg
Ascorbic acid	162 mg

TABLE 3—Two Hundred Milligram Sodium Diet

Food Groups	Suggested Foods from Which to Choose			
Meats	Beef Chicken Cod fresh	Hallbut, fresh Lamb Pork	Rabbit Salmon, fresh Turkey	Veal
Nuts, unsalted		Almonds Brazil	Pecans Peanuts	
Egg				
Fruits	Apples Apricots Bananas Blackberries Cherries Cranberries	Figs Gooseberries Grapefruit Grapes Lemons Limes	Mulberries Oranges Peaches Pears Pineapple Plums	Raspberries Rhubarb Strawberries Tangerines Watermelon
Vegetables	Asparagus Beans, green Beans, lima Beans, navy Broccoli Brussels sprouts	Cabbage Corn Cucumbers Eggplant Endive Lettuce	Mushrooms Onions Parsnips Peas Pepper, green Pumpkin	Squash (all kinds) Tomatoes Turnips
Potato and substitutes		Macaroni Potato, sweet	Potato, white Rice	Spaghetti
Bread and cereals	Bread, unsalted Cornmeal, yellow Farina Maltex *	Matzo, unsalted Oatmeal Instant Ralston * Rice, puffed	Wheat, shredded Wheatena *	
Fat	Butter, sweet	Other unsalted fats		
Beverages	Coffee, clear Lonalac * Tea, clear	Fruit juices apple, grape	Grapefruit Lemonade Lime	Orange Pineapple Prune
Miscellaneous	Allspice Bay Caraway	Celery seed Garlic Honey	Jelly Mustard, dry Nutmeg	Paprika Pepper Vanilla Vinegar

* Registered trademark

TABLE 4—Sodium Content of Sample Day's Diet as Determined by the Flame Photometer Method 200 Milligrams

Date Analyzed	Total Average Mg Sodium
Jan 10	428
Feb 28	183
May 23	295
May 24	337
July 25	500

made up to contain 1,800, 2,400 or 3,000 calories, depending on the needs of the patient. Table 1 illustrates the 2,400 calory diet and the adequate protein and other values, notwithstanding the rigid restriction of sodium. The patients are instructed to drink eight or nine glasses of distilled water daily, and for those whose diets do not contain the salt-free milk¹¹ calcium

10 Diet Manual of University Hospital, University of Michigan, Ann Arbor, Mich., George Wahr 1947, p. 27.

11 Lonalac,® product of Mead Johnson & Company.

12 Fantus, B. Fluid Postoperatively, J A M A 107 14 (July 4) 1936.

13 Bryant J M, Iob, V, Phillips, G L and Blecha E Estimation of Urinary Sodium, J A M A 140 670 (June 25) 1949.

14 These studies were done in the metabolic research unit under the direction of Dr S H Bassett.

15 Ajman, D. Present Day Treatment of Essential Hypertension, M Clin North America 28 1141, 1944. White P D The Management of Hypertension, Ann Int Med 27 740, 1947.

time report on only 59. Fifty-one are males and 8 females. The largest number of patients, 32, are in the age group 50 to 59, 11 are in the 60 to 69 group, the remaining 16 are distributed among the other groups ranging from 25 to 75. Thirteen of the patients have been followed twelve to sixteen months, 18 seven to eleven months and 28 three to six months.

Despite the careful dietetic supervision not all the patients were equally successful in following the diet. If a patient averaged 1 to 2 Gm of chloride excretion per twenty-four hours as determined by the rough urinary test, he was considered to be a strict adherent to the diet. Those that averaged 2 to 3 Gm were classified as moderate adherents, and those with over 3 Gm of chloride excretion per twenty-four hours, as poor followers of the diet. According to this classification 36 patients adhered strictly to the diet and 17 moderately, the remaining 6, who were poor followers, could not possibly be considered to be on the 200 mg sodium regimen.

Twenty-one of the 59 patients had no change in weight and 9 gained weight. Therefore, in slightly over 50 per cent of the patients weight loss could not be considered a significant factor in any results obtained. Of the 29 patients who lost weight, 10 lost less than 10 pounds. We considered that only 19 (32 per cent of the group) had a significant weight loss.

The most difficult and controversial aspect of any report dealing with hypertension is to determine what constitutes a significant reduction in blood pressure. The methods have varied with different authors. Kempner¹⁶ considered improvement to equal a decrease of 20 in the mean arterial pressure, Fishberg¹⁷ accepted a 25 per cent reduction in diastolic and a 25 per cent reduction in systolic, Berger and Fineberg¹⁸ evaluated the trend of the blood pressure curve, Bryant and Blecha⁹ used a blood pressure fall to 155 systolic and 95 diastolic. We have adopted the Smithwick classification of diastolic reduction, group 1 representing a diastolic reduction of 30 mm of mercury or more, group 2 of 20 to 29 mm, group 3 of 10 to 19 mm, group 4, 0 to 9 mm, and group 5 to represent any increase in the diastolic pressure. In our results we will consider those patients in groups 1, 2 and 3 as having a significant drop in blood pressure. In addition, we have categorized those patients who have had a reduction in blood pressure to 155 systolic and 95 diastolic or less.

As has previously been stated, no patient was included in the series whose pretreatment blood pressure level was lower than 170 systolic and 100 diastolic. The majority of the patients (34, or 60 per cent of the group) had diastolic pressures of 120 mm of mercury or more.

Blood Pressure Response—Twenty per cent of the patients had a reduction in blood pressure to 155 systolic and 95 diastolic or less, 13.5 per cent fitted into groups 1 and 2 of the Smithwick classification, and 29.5 per cent into group 3. Fifty-four per cent remained essentially the same, and 3 per cent progressed. The number of patients with a significant drop in blood pressure would range from 13.5 to 43 per cent, depending on the criteria used, with an average of these methods indicating that 25 per cent of the patients had a significant

reduction in blood pressure. Of all the patients whose blood pressure fell decidedly only 1 did not adhere to the diet, and slightly less than half of these patients had a significant reduction in weight.

Symptomatic Response—Forty-six of the patients suffered from a typical hypertensive headache. Of these, 40 improved and none progressed. Seven of the patients whose headaches were incapacitating obtained complete relief after the diet was instituted. Of 36 patients who complained of dizziness 25 improved and 2 became worse. It is interesting that 25 of 33 patients with insomnia showed improvement. This has been noted in the psychiatric literature¹⁸ and is, we believe, worthy of further study. Seven of 16 patients with angina definitely improved, and only 1 progressed.

Of the patients who responded symptomatically over 90 per cent adhered to the diet, approximately one half had a significant blood pressure drop and about one third had a significant weight loss. It is apparent that some patients obtained symptomatic relief with neither blood pressure drop nor weight loss, i.e., 42.5 per cent of the patients who had headache and 38 per cent of those with tinnitus obtained relief on the diet without blood pressure drop or weight loss.

Objective Improvement—Thirty-one patients had involvement of the ocular fundi, grade 2 or more according to the Keith-Wagener classification. Eleven improved, and all 11 followed the diet. Five of the 31 patients had papilledema, and in all 5 the papilledema subsided. Four of these 5 did not have a significant drop in blood pressure. In addition, 3 of the 5 patients had clearing of hemorrhages and exudates, (improved from a Keith-Wagener grade 4 to a grade 2). Thirty-four patients had electrocardiographic evidence of left ventricular enlargement with or without myocardial changes. Nine improved and 1 progressed.

Fifteen patients had elevation of the blood urea nitrogen plus other evidence of impaired renal function, 7 showed improvement in renal function, 7 remained essentially unchanged, and 1 progressed. The last-mentioned patient was the only one in the series to die. This man, aged 60, after four months on the diet with slight subjective improvement, manifested a rising diastolic blood pressure to 160 mm of mercury, became comatose and after several weeks died in uremia. Post-mortem examination revealed decidedly contracted kidneys. The death in this instance was due finally to a lack of an adequate number of functioning nephrons, and it is highly problematic whether the diet played any part in initiating the final picture.

Twenty-two of the patients had roentgen evidence of cardiac enlargement. To date we are unable to say that any patient showed radiologic evidence of decrease in heart size which could definitely be attributed to the diet.

Contraindications to the Diet—There have been repeated warnings in the literature regarding the administration of a low sodium diet in the presence of impaired renal function¹⁹. In no instance, however, have we ever denied a patient the diet because of renal disease. All such patients are carefully observed, and frequent determinations are made of the urea nitrogen,

16 Kempner W. Treatment of Hypertensive Vascular Disease with Rice Diet. *Am J Med* 4: 545 1948.

17 Fishberg A M. Sympathectomy for Essential Hypertension. *J A M A* 137: 670 (June 19) 1948.

18 Miller M M. Low Sodium Chloride Intake in the Treatment of Insomnia and Tension States. *J A M A* 129: 262 (Sept. 22) 1945.

19 Macguire W B. Risk of Uremia Due to Sodium Depletion. *J A M A* 137: 1377 (Aug. 14) 1948. The Treatment of Hypertension. editorial ibid. 135: 576 (Nov. 1) 1947. Thorn G W. Treatment of Renal Insufficiency. *J Urol* 59: 119 1948.

sodium and chloride of the blood. To date we are of the opinion that it is seldom necessary to add sodium chloride to the diet of these patients. As our results indicate only 1 patient who began the diet with poor renal function had a progressive renal course. The addition of sodium chloride was of no benefit.

Excessive sweating in a warm climate is also mentioned as a contraindication to the strict use of the diet. However, Conn, Johnston and Louis²⁰ have pointed out that persons respond to a diminished sodium intake by reducing the concentration of salt in the sweat, thereby conserving body salt. In our experience here in southern California we have never found it necessary to add sodium chloride to the diets of our patients, even those engaged in strenuous physical labor.

SUMMARY AND CONCLUSION

1 Fifty-nine patients with hypertension were treated with a diet containing approximately 200 mg of sodium but adequate in other respects. Thirty-six patients were able to adhere strictly to the diet. Seventeen adhered to it moderately well. Six followed it poorly. Nineteen of the 59 patients had a significant loss in weight.

2 About 25 per cent of the patients had a significant drop in blood pressure. Approximately 45 per cent of the patients who obtained this significant blood pressure drop also had a significant weight loss. At present we are unable to evaluate the influence of weight loss in our results.

3 The majority of the 59 patients obtained substantial relief of the symptoms usually attributable to hypertension. The most striking result was that 87 per cent of the patients who complained of headaches were either decidedly improved or completely relieved of this symptom.

4 All the patients in the series with papilledema improved.

5 The large percentage of the patients with diminished renal function tolerated the diet well, with improvement in both their hypertensive status and renal function.

6 The diet probably is easier for the patient to follow than the rice and fruit juice diet, but because of the wide variety of foods allowed the physician is less certain that the strict reduction of sodium is effected. It is essential to check the urinary chloride excretion or preferably sodium excretion, the latter being more accurate but less practical.

7 The cases reported herein are too few for definitive statistical analysis.

6228 Wilshire Boulevard

20 Conn J W, Johnston M W and Louis L H. Relationship Between Salt Intake and Sweat Salt Concentration Under Conditions of Hard Work in Humid Heat. *Federation Proc* 5:230 1946

AUREOMYCIN IN THE TREATMENT OF GONORRHEA

Study of One Hundred Cases

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In a preliminary paper¹ we reported that aureomycin could be used more effectively in the treatment of gonorrhea than was earlier observed by other investigators.² In the first 20 consecutive patients treated by us with a dosage of 1 Gm of aureomycin three times daily for two days, 100 per cent success was obtained. Moreover, the majority of patients became completely symptomless after 3 Gm or less of aureomycin had been taken. Therefore, our impression was that a one day treatment, consisting of three doses of 1 Gm each, would suffice. In order to ascertain this point and to further investigate the value of aureomycin in the treatment of gonorrhea, we undertook this study.

METHODS AND RESULTS

A series of 100 unselected patients with laboratory proved cases of gonorrhea was arbitrarily divided into two groups of 50 patients each. Group A was given 6 Gm and group B 3 Gm of aureomycin, to be taken orally in 1 Gm doses three times daily at home. An adjustment was made for an 11 year old child in group B, who was given 750 mg instead of 1 Gm per dose. All patients were directed to return in a week for reexamination. During these reexaminations three things were done: 1. Questions were asked as to when the presenting symptoms, if any, completely subsided and whether or not drug reactions occurred. 2. A careful local examination was made. 3. A culture was taken from a urine specimen in the male subjects and from the urethra and the cervix in the female subjects. If any urethral exudate was seen in the male subjects a smear was made, and in these cases the culture was taken from the anterior urethra with a swab instead of from the urine specimen. All cultures were done on Peizer medium. The clinical data and results are shown in tables 1 and 2.

COMMENT

From tables 1 and 2 it will be noted that the treatment failed in only 1 patient in each group of 50 patients treated. Accordingly, the results obtained in these two groups were identical, each group having a rate of cure of 98 per cent. Of the 35 patients in group A who had an accurate idea of when their symptoms had completely disappeared, 24 (approximately 70 per cent) said this occurred after 3 Gm or less of aureomycin had been taken. These observations confirm our

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Dr Abe Davis, Health Commissioner for Richmond County Health Department, Augusta, furnished the clinical material and the laboratory work for this study.

1 Chen C H, Dienst R B and Greenblatt, R B. Oral Administration of Aureomycin in the Treatment of Gonorrhea. *Urol & Cutaneous Rev* 53:394-397 (July) 1949.

2 Finland M, Collins H S, and Paine, T F. Aureomycin, a New Antibiotic. Results of Laboratory Studies and of Clinical Use in 1 Cases of Bacterial Infections. *J A M A* 138:946-949 (Nov 27) 1948. Collins H S, Paine, T F, Jr, and Finland M. Clinical Studies of Aureomycin. *Ann New York Acad Sc* 51:231 (Nov 30) 1948.

Millions of Gifts to Relieve Suffering—According to the U S State Department Germans received from the American people between June 1946 and June 1950 more than 39,000,000 gift parcels containing 256,000 tons of food, clothing and similar items for relief of human suffering. The contents of these parcels and their postage represent contributions by the American senders totaling some \$325,000,000, according to figures compiled by the Office of the U S High Commissioner for Germany—*Monthly Information Sheet*, U S State Department, June 1950.

former belief that aureomycin, when given orally in the dosage of 1 Gm three times daily for one day, would be as effective as the same daily dose given for two days

The conditions of these two groups were comparable. There were 40 male subjects and 10 female subjects in group A and 43 male subjects and 7 female subjects in group B. The average age in group A was 25.2 years and in group B 25.6 years, with the majority of patients between 15 and 30 years of age. Although the duration of the disease varied from one day to two months, most of the patients had had symptoms for one to seven days, and most had gonorrhea of the acute anterior urethritic type.

The duration of the disease did not seem to have any influence on the speed of recovery. It is of interest to note also that in 10 of these 100 patients the condition had failed to respond to other forms of therapy: penicillin (in 7), chloramphenicol (in 2) and sulfonamide drugs (in 1).

TABLE 1—Results of Oral Administration of 6 Gm Aureomycin to 50 Patients with Gonorrhea (Group A)

Patients	Number of Patients
Male	40
Female	10
Race	
White	12
Negro	38
Age (years)	
Youngest 10	
Oldest 60	
Average 25.2	
Duration of disease (days)	
Shortest 1	
Longest 60	
Average 5.8	
Previous medication for present illness	
Penicillin injections	3
Penicillin tablets	1
Chloramphenicol capsules	1
Sulfonamide tablets	1
Total	6
Dosage for complete cessation of symptoms (Gm)	
2	11
3	18
4	1
5	1
6	9
Drug reactions	
Nausea	4
Vomiting	2
Diarrhea	1
Malaise	1
Gaseous distention	1
Drowsiness	1
Dizziness	1
Results	
Cured	49
Failed	1

Eleven patients in group A and 7 in group B complained of some reactions from the aureomycin. These reactions ranged from slight nausea and dizziness to vomiting and diarrhea. Most of the reactions occurred late in the course of treatment and none were severe enough to call for an interruption of the medication. However, there was a patient who vomited every dose

of aureomycin. For that reason, she could not be included in this study.

The standard treatment for gonorrhea at present consists of one intramuscular injection of 300,000 units or less of penicillin in some prolonging agent. This form of therapy, according to the record of the clinic of the

TABLE 2—Results of Oral Administration of 3 Gm Aureomycin to 50 Patients with Gonorrhea (Group B)

Patients	Number of Patients
Male	43
Female	7
Race	
White	8
Negro	42
Age (years)	
Youngest 11	
Oldest 48	
Average 25.6	
Duration of disease (days)	
Shortest 1	
Longest 35	
Average 6.7	
Previous medication for present illness	
Penicillin injections	1
Penicillin tablets	2
Chloramphenicol capsules	1
Total	4
Dosage for complete cessation of symptoms (Gm)	
1	2
2	7
3	20
Drug reactions	
Nausea	4
Vomiting	1
Dizziness	1
Drowsiness	1
Results	
Cured	49
Failed	1

Richmond County Health Department, where the present study was carried out, is successful in approximately 90 per cent of cases.¹ Mahoney and Thayer and Jacoby and associates reported somewhat better results, ranging from 93 to 95 per cent.² (The 100 per cent cure claimed by others was achieved with more than one injection of penicillin.³) Therefore it is apparent that orally administered aureomycin in the dosages employed in this study is at least as effective as one injection of penicillin against gonorrheal infections. Although 100 patients do not constitute a large series, we feel that it is large enough for the purpose of obtaining a general idea as to the efficacy of a drug and that the results from the study of a larger series will probably not be significantly different.

The rates of cure with chloramphenicol, used orally in 24 patients with gonorrhea treated with 1 Gm three

1 Mahoney, J. R. and Thayer, J. D. Bacterial and Mycotic Infections of Man, edited by Dubos, R. J. Philadelphia: J. B. Lippincott Company, 1948. Jacoby, A., Ollswang, A., Freund, J., and Rosenthal, T. Ambulatory Treatment of Gonorrhea with Penicillin Preparations. Am. J. Syph., Gonorr. & Ven. Dis. 32: 133-138 (March) 1948.

2 Parkhurst, G. E., Harb, R. W., and Cannefax, G. R. Penicillin Resistant Gonorrhea vs. Nonspecific Urethritis. Ven. Dis. Inform. 28: 211 (Oct.) 1947. Hughes, R. P. and Carpenter, C. M. Alleged Penicillin Resistant Gonorrhea. Am. J. Syph., Gonorr. & Ven. Dis. 32: 265-271 (May) 1948. Cohn, A., Grunstein, I., Goldberg, R., and Crane, J. So-Called Penicillin Resistant Gonococcal Infections. A Clinical and Laboratory Study. Am. J. Syph., Gonorr. & Ven. Dis. 33: 86-90 (Jan.) 1949.

times daily for one and two days, were 70 to 92.6 per cent, respectively.⁵ Robinson and Robinson, using various dosage schedules, obtained 70 to 100 per cent success in 13 patients with gonorrhea.⁶ Since the number of patients treated with chloramphenicol is small, further study is necessary before the position of this antibiotic can be properly evaluated. The lesser toxicity of chloramphenicol is its advantage over aureomycin.⁵

SUMMARY AND CONCLUSIONS

One hundred patients with laboratory-proved cases of gonorrheal infection were arbitrarily divided into two equal groups. Group A was given 1 Gm of aureomycin orally three times daily for two days (6 Gm), and group B was given the same daily dose for one day (3 Gm). The results obtained from these two groups were identical; there was one failure in each group. Thus, the percentage of cure was 98 in each group. It was further noted that the majority of patients in group A were symptom free after 3 Gm or less of aureomycin had been taken. Therefore, the 3 Gm dosage seems sufficient. Toxic reactions were few and not serious. In several patients the disease, which had failed to respond to penicillin and other medication, yielded to aureomycin treatment. In view of this fact, plus the high percentage of cure and the comparatively simple method of administration, we feel that aureomycin has its definite value in the treatment of gonorrhea.

ANEMIA FOLLOWING USE OF ANTI-HISTAMINIC DRUGS

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The purpose of this report is to call attention to the occurrence of hemolytic anemia in 3 patients who had received antihistaminic drugs over long periods of time. Since the announcement in 1947 by Brewster¹ of the role of diphenhydramine hydrochloride (benadryl hydrochloride[®]) as a therapeutic agent in the treatment of the common cold, followed by subsequent releases by Brewster in 1949, antihistaminics have been widely employed in conditions of doubtful allergic causation.² A review of the literature since the initial report on diphenhydramine by Loew and Kaiser³ reveals only 4 cases of hematologic disorders associated with antihistaminic therapy, and these reports⁴ have all been concerned with the agranulocytosis which follows treatment with this group of drugs. I believe that this

report of 3 cases of anemia following antihistaminic therapy constitutes the first observation of such toxic hematologic side effects from this group of drugs.

REPORT OF CASES

CASE 1—A Negro woman aged 28 was examined for the first time May 3, 1948, while she was in the midst of an attack of bronchial asthma, which had already lasted over twelve hours and for which she had already administered to herself several injections of epinephrine hydrochloride solution without obtaining relief. The patient had had asthma since the age of 14, it was much severer in the Autumn and Spring, and she usually recovered by "smoking asthma cigarettes" and giving herself epinephrine injections. Physical examination showed symptoms which were attributable to long standing bronchial asthma. The hemoglobin was 14.5 Gm per hundred cubic centimeters (Sahli method), the red blood cell count was 4,850,000, the differential showed 5 per cent eosinophils. The urine was normal. The temperature was 100.5 F.

The patient was given 15 grains (0.97 Gm) of aminophylline injection intravenously at once, and an intravenous infusion of 1,000 cc of 5 per cent dextrose to which 150 mg of diphenhydramine hydrochloride had been added was started. The patient soon began to show decided improvement of her symptoms. She was given a prescription for 50 mg capsules of diphenhydramine hydrochloride with instructions to take one each morning and night, with additional capsules every four hours during the day if she felt that an attack was impending. She was told that she might have this prescription refilled at the drug store as often as she needed more of the capsules. The patient was given a second prescription for rectal suppositories, each of which contained 500 mg of aminophylline and 100 mg of pentobarbital. She was instructed to use these at bedtime and not to attempt to have this prescription refilled.

The patient was not seen again until March 9, 1949, about ten months after her initial treatment. At this time she stated that she had been receiving treatment for "anemia" by another physician since November 1948. She consulted this physician because of weakness, nervousness and inability to sleep at night. She was told that her symptoms were due to "lack of iron in the blood and anemia." Liver injections were prescribed which she had been giving herself at weekly intervals (10 units each) and she was also taking 5 grain (0.32 Gm) tablets of ferrous sulfate three times a day. The patient stated that she had been following this plan of therapy since December 1948 without apparent benefit.

Physical examination revealed no abnormalities, there was no jaundice or weight loss, and the patient did not appear chronically ill. Laboratory examination of the blood on the date (March 9, 1949) showed hemoglobin 5.2 Gm (Sahli method), red cell count 2,120,000, white cell count 10,200 with normal differential, platelet count 120,000, no increase in reticulocytes, and bleeding time 2 minutes (Duke's method). Examination of the smear showed no sickling either immediate or latent, and the red cell appeared normal in size and shape. Result of the fragility test of red cells was normal. The urine showed large amounts of urobilinogen (Schlesinger's method); likewise, the blood serum gave a strongly positive test for elevated serum bilirubin (Gmelin's test). Further blood studies showed color index 0.8, hematocrit 18 per cent, volume index 0.88, the mean cell volume 85 cu microns, and mean cell hemoglobin 25 micromicrograms. At this point it was evident that the patient had normochromic normocytic anemia of hemolytic nature.

The only drug that the patient was taking was diphenhydramine, which she admitted having taken rather consistently over the ten month period, she was requested to stop all medication and to return for follow-up studies of her blood. The results of these subsequent examinations are shown in table 1.

CASE 2—A white woman aged 34 was examined initially on March 11, 1949. Her chief complaints at this time were fatigue, weakness and nervousness, she also stated that she had "anemia," having been told that she needed iron by a physician in December 1948. She had had hay fever "practically all of her life." The patient had never consulted a physician with regard to her hay fever, for one of her sisters also had hay

5 Chen, C. H., Dienst, R. B., and Greenblatt, R. B. The Treatment of Gonorrhea with Chloramphenicol, *South M J* 42: 986-988 (Nov.) 1949.

6 Robinson, H. M., and Robinson, H. M., Jr. Studies on Chloramphenicol in Early Syphilis and Gonorrhea. Preliminary Report, *South M J* 42: 988-991 (Nov.) 1949.

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Dr. Max M. Strumia, assistant professor of pathology assigned to Internal Medicine, Graduate School of Medicine of the University of Pennsylvania, assisted in my preparation of this article.

1 Brewster, J. M. Benadryl as Therapeutic Agent in the Treatment of the Common Cold. *U. S. Nav. Med. Bull.* 47: 810 (Sept.-Oct.) 1947.

2 Brewster, J. M. Antihistaminic Drugs in the Therapy of the Common Cold. *U. S. Nav. Med. Bull.* 49: 1 (Jan.-Feb.) 1949. Treatment of the Common Cold with an Antihistaminic Drug, *Illinois M J* 96: 302 (Nov.) 1949.

3 Loew, E. R., and Kaiser, M. E. Alleviation of Anaphylactic Shock in Guinea Pigs with Synthetic Benzhydryl Alkamine Ethers, *Proc. Soc. Exper. Biol. and Med.* 58: 235 (March) 1945.

4 Clement, R., and Godlewski, S. Agranulocytose aigue curable apparue au cours du traitement d'un asthme par un antihistaminique de synthese, *Bull. et mem. Soc. Med. d'hop. de Paris* 61: 103 (March 2) 1945. Blanton, W., and Owens, M. Granulocytopenia Probably Due to Pyribenzamine. *J. A. M. A.* 134: 454 (May 31) 1947. Cahan, A. M., Meilman, E., and Jacobson, B. M. Agranulocytosis Following Pyribenzamine. *New England J. Med.* 241: 865 (Dec. 1) 1949. Drake, T. G. Agranulocytosis During Therapy with the Antihistaminic Agent Methaphenylene (Diatrin), *J. A. M. A.* 142: 477 (Feb. 18) 1950.

fever, and the patient generally took some of her sister's medicine when her own symptoms became unduly troublesome. When she was questioned specifically she stated that she had been taking 50 mg tablets of tripeleannamine hydrochloride (pyribenzamine hydrochloride*) since January 1948 (Her sister had given her the drug at first, but she now purchased it directly from the drug store.) She stated that she took at least three tablets a day and on some days five to six, she had found that her hay fever was better if she took the tablets every day instead of waiting until she had a severe exacerbation before beginning treatment. With regard to the anemia, the patient had had several injections of liver in December 1948 but had discontinued these though she was still taking her iron tablets (3 grains [0.19 Gm.] of ferrous sulfate) three times a day. Physical examination revealed pronounced paleness of the mucous membranes of the nose and throat, there was no jaundice and the patient was apparently well nourished. Other than this the physical examination was noncontributory. A vaginal examination and a detailed menstrual history revealed no cause for any undue blood loss. Laboratory examination at this time showed hemoglobin 8.5 Gm per hundred cubic centimeters (Sahli method), red cell count 3,120,000, white cell count 9,800 per cubic millimeter, and normal differential. Stained smear showed red cells of normal size and shape. The erythrocyte fragility test gave a normal result. Further study revealed a mean cell volume of 77 cu microns, a mean cell hemoglobin of 28 micromicrograms. The urinary examination showed large amounts of urobilinogen (Schlesinger's method).

TABLE 1—Follow Up Studies of Blood in Case 1

Date	Hemoglobin	Red Cell Count	White Cell Count	Urinary Urobilinogen	Reticulo-cytes	Serum Bilirubin
5/3/48	14.5 Gm	4,850,000	14,500			
3/9/49*	5.2 Gm	2,170,000	10,700	4+	3%	4+
4/10/49	6.5 Gm	2,370,000	9,500	2+	7%	4+
4/18/49	8.7 Gm	3,100,000		Absent	1%	None detectable
5/10/49	10.5 Gm	3,800,000		Absent	10%	None detectable
6/16/49	11.9 Gm	4,100,000			6%	
7/15/49	13.2 Gm	4,350,000			5%	
9/2/49	13.7 Gm	4,470,000			7%	

Diphenhydramine therapy stopped; patient had averaged 150 mg of the drug per day over the preceding ten month period.

The serum bilirubin was decidedly elevated (Gmelin's test). In view of these observations it seemed certain that the patient's anemia was of hemolytic nature.

The only drug which the patient had been taking was tripeleannamine, and she was requested to stop all medication. She was given a placebo and a prescription for ephedrine nose drops to help her rhinitis. She was told to return at regular intervals for follow up blood studies, and these are shown in table 2.

CASE 3—A white man aged 36, a carpenter, consulted me on May 27, 1949, with acute symptoms of hay fever. He was given a prescription for 50 mg capsules of diphenhydramine hydrochloride, he was instructed to take the capsules as needed, not oftener than one every four hours. Unfortunately the blood was not examined at this time. The patient was not seen again until Aug 3, 1949, when he had severe disabling headache of approximately thirty six hours duration. He stated that it was most unusual for him to have a headache as he had never had one previously except for several hours after an automobile wreck which had occurred many years ago. He had suffered an unusually severe exacerbation of his hay fever prior to the onset of this headache and had taken six capsules of diphenhydramine hydrochloride over a period of six hours. The headache had ensued shortly thereafter. The patient believed that perhaps the headache was due to the drug. Physical examination at this time revealed nothing abnormal. The laboratory examination showed hemoglobin 9.2 Gm (Sahli method), red cell count 3,700,000, and white cell count 7,500 with a normal differential cell count. A smear of the peripheral blood showed no abnormalities in the size or shape of the red cells. Urinary examination disclosed large amounts of urobilinogen (Schlesinger's method), the blood serum showed a decided increase in bilirubin (Gmelin's test). It was decided to discontinue

diphenhydramine therapy immediately and to follow his blood picture. The headache was completely gone in twenty-four hours, and the patient's hematologic response showed a constant improvement (table 3).

COMMENT

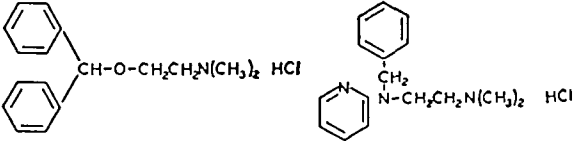
Diphenhydramine is a benzhydryl ether. It is thus chemically distinct from most of the other antihistaminic agents. Tripeleannamine on the other hand is an ethyl-

TABLE 2—Follow Up Studies of Blood in Case 2

Date	Hemoglobin	Red Cell Count	White Cell Count	Urinary Urobilinogen	Reticulo-cytes	Serum Bilirubin
3/11/49*	8.5 Gm	3,120,000	9,800	4+	3%	4+
5/16/49	9.5 Gm	3,530,000		Absent	8%	None detectable
6/21/49	10.7 Gm	3,860,000			11%	
8/20/49	12.3 Gm	4,110,000			4%	
9/26/49	13.9 Gm	4,420,000			3%	

* Tripeleannamine dosage stopped; no medication given except placebo. The patient had averaged 150 mg of the drug per day for preceding fifteen months.

enediamine with a pyridine ring structure, and there are a number of other ethylenediamines which contain the pyridine ring structure and are members of the antihistaminic drug family. The ring does not have to be a pyridine, because a third group⁵ of antihistaminic agents, although ethylenediamines, contain a phenyl ring instead of the pyridine.



Structural formulas of diphenhydramine hydrochloride and tripeleannamine hydrochloride

Apparently there has been little investigation of the absorption, excretion and fate of the antihistaminic drugs. It is known, however, that absorption from the gastrointestinal tract is rapid, since improvement in the patient's allergic phenomena occurs usually within the hour after administration of the drug.⁶ Glazko and Dill, in an experimental study of the fate of diphenhydramine

TABLE 3—Follow-Up Studies of Blood in Case 3

Date	Hemoglobin	Red Cell Count	White Cell Count	Urinary Urobilinogen	Reticulo-cytes	Serum Bilirubin
8/3/49*	9.2 Gm	3,700,000	7,500	4+	4%	4+
8/20/49	10.5 Gm	3,950,000		Absent	11%	None detectable
9/15/49	11.2 Gm	4,150,000			10%	
9/28/49	11.8 Gm	4,350,000			6%	
12/28/49	14.2 Gm	4,080,000			2%	

* Patient had been receiving diphenhydramine hydrochloride since May 27, 1949, or about eight weeks and had averaged 150 mg per day over this eight week period.

in the rat, using a radioactive form of the drug, found the greatest concentration in the spleen, kidney and liver of the animal. They also found evidence suggesting that the liver of the rat was the primary source of an enzyme which destroys diphenhydramine.⁶ It is regrettable that studies of liver and kidney function were not performed in these 3 patients for completeness, though there is no reason to believe that any of the 3 patients

5. Loew, E. R. Pharmacology of Antihistamine Compounds. *Physiol Rev* 27: 542, 1947.
6. Glazko, A. J. and Dill, W. A. Biochemical Studies on Diphenhydramine. *J Biol Chem* 179: 417, 1949.

might have had renal or hepatic dysfunction. There have been no reports of the cumulative effects of the antihistaminic drugs, but such cumulative action might explain the hemolysis seen in these 3 patients as a result of failure in the excretion or the inactivation of the drug given.

The first patient received an average of three 50 mg capsules of diphenhydramine hydrochloride daily over a ten month period, she consulted a physician and was told that she had anemia some five months after the start of diphenhydramine therapy. After her condition was diagnosed as "anemia" this patient received injections of liver and intensive iron therapy without improvement. However, when all medication was discontinued the patient steadily improved, and her blood returned to normal after about five months of observation. The second patient, who had prescribed tripeleminamine hydrochloride for herself, likewise had taken an average of three 50 mg tablets daily for a period of ten months before her condition was diagnosed as "anemia." She had not received enough liver to obtain significant results therapeutically, but she had regularly taken 9 grams (0.58 Gm) of ferrous sulfate a day for nearly three months without improvement. As soon as tripeleminamine therapy was discontinued her blood picture steadily improved, within five months during which she took no medication she was much improved. The third patient, who manifested a hemolytic process much earlier, might never have consulted a physician had it not been for a severe headache which occurred after he took an overdose of diphenhydramine hydrochloride in an attempt to abort an exacerbation of his hay fever.

Additional clinical data are needed⁷ to demonstrate the true value and safety of these remedies. Loveless in 1947⁸ in her report on the side effects of diphenhydramine was concerned with the immediate side effects of the drug and studies were not reported of the possible side effects after its prolonged administration. In reports by Feinberg⁹ in both 1946 and 1947 the toxic side effects of these drugs were discussed, this investigator did not believe that these drugs should be indiscriminately employed. In view of the facts that this group of drugs is being prescribed by the members of the medical profession for use by the patient over extended periods of time and that in many states these drugs are now being sold openly over the counter at drugstores for use in the self treatment of colds, I believe that these 3 cases of hemolytic anemia in association with antihistaminic therapy should be an added warning concerning the toxic side effects of the antihistaminic drugs.

SUMMARY

Three cases of hemolytic anemia associated with the administration of antihistaminic drugs are reported. In all 3 cases response to withdrawal of the drug was a return to normal of the blood picture. Since long term observations have not been made covering the possible delayed toxic effects of the antihistaminic agents, they should not be administered without adequate medical supervision.

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FEBRILE CONVULSIONS IN CHILDREN

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For the purposes of this discussion a febrile convulsion is defined as a major seizure precipitated by a nonspecific fever of variable degree in a person with a potential convulsive disorder. The convulsion is always a major seizure. The degree of the inciting fever varies with each child and with other circumstances. The assumption of a potential convulsive disorder is based on the common knowledge among general practitioners that convulsions are not common in children and that when they occur it is usually in families which have a history of convulsions.¹ In 25,000 admissions to the Milwaukee Children's Hospital the incidence of convulsions was less than 2 per cent.² This figure is weighted by a large number of convulsive patients admitted for study. Therefore when less than 2 children from 100 with similar complaints and, usually, fever respond with convulsions it may be assumed that there is an intrinsic defect or abnormality in those.³ Cases in which convulsions were caused by the direct infection or invasion of the central nervous system, such as encephalitis, meningitis and septicemia, are not included in this study.

There has been a recent tendency to minimize single, infantile or febrile convulsions. Livingston, Bridge and Kajdi studied 94 cases of febrile convulsions at the Johns Hopkins Hospital and followed them for fourteen years.⁴ Electroencephalograms are not mentioned. In their series they report the prognosis for recovery as good in patients with febrile convulsions and better in those having fewer recurrences and those whose near relatives gave a similar history. Faxen⁵ and Herlitz⁶ have stated that the prognosis of febrile convulsions is good. However, Zellweger found that, of 105 cases of febrile convulsions, definite epilepsy developed in 15 and probable epilepsy in 6. Osler in 1935 stated that 40 per cent of his epileptic patients gave a history of infantile convulsions.⁸ Patrick and Levy concluded that infantile convulsions increased the patient's chances of having epilepsy five times,⁹ and Thom calculated the chances are increased twelve times.¹⁰

Buchanan believes that "the child who has had even one convulsion, and that associated with a high temperature, has by that token demonstrated that his cortex is less stable than that of his fellows. His threshold for discharge is lower than the accepted normal. It is clinically true that from 15 to 20 per cent of children who have attacks associated with fever in childhood have spontaneous attacks later.

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4. Livingston, S., Bridge, E. M., and Kajdi, L. *J Pediatr* 31: 57 (Nov.) 1947.

5. Faxen, N. *Rev franç de pédiat* 11: 665, 1935.

6. Herlitz, C. W. *Acta paediat (supp)* 29: 1, 1941.

7. Zellweger, H. *Helvet. paediat. acta supp* 5: vol 3, chap 1, Basle, Benno Schwabe & Company, 1948.

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9. Patrick, H. T., and Levy, D. M. Early Convulsions in Epilepsy and in Others. *J A M A* 82: 375 (Feb 2) 1924.

10. Thom, D. A. *Am J Psychiat* 9: 574, 1942.

7. Antihistaminics for Colds, editorial, *J A M A* 142: 570 (Feb 25) 1950.

8. Loveless, M. H. Therapeutic and Side Effects of Benadryl. *Am J Med* 3: 296, 1947.

9. Feinberg, S. M. Histamine and Antihistaminic Agents, *J A M A* 132: 702 (Nov 23) 1946, The Antihistaminic Drugs. *Am J Med* 3: 560 (Nov) 1947.

in life"¹¹ My experience leads me to agree with this conclusion

Lennox agrees with this thesis in her statement that "febrile convulsions differ as a disease from epilepsy only with respect to severity, but there is no real difference in kind"¹² However, in a review of her 77 cases in a recent paper, Lennox makes this statement, "Convulsions in children under 5 years of age are surprisingly frequent they occur in 5 to 7 per cent of the normal population, and are attributable to fever in one half of the cases" She also repeats her earlier statement, "We do not wish to deny what is well known—that the great majority of children with febrile convulsions will have no further seizures during the rest of their life"¹³

It is my desire to reemphasize my earlier contention that every major convulsion is a serious, significant symptom worthy of careful, complete study and entitled to consideration as a possible onset of epilepsy It is also my wish to correct a misinterpretation of my statistics Several investigators have considered all the 835 cases of convulsions classified under "acute infection" as cases of febrile convulsions—this in spite of my statement "It may be noted that in one third of the cases the cause of convulsions was due to or associated with acute infections This includes generalized acute infections and the onset of the acute infectious diseases"¹⁴ This distinction has been made throughout in my classifications¹⁵ My explanation has been that these convulsions, for the most part, represent the invasion of the central nervous system by bacteria or viruses, with a rise in temperature to the threshold level for that particular person Therefore, the convulsion occurs simultaneously or before the fever This is a most important point in diagnosis In the febrile convulsions, as defined in my opening sentence, the fever occurs first, rises rapidly and precipitates the convulsion, but only in the child who has a potential convulsive tendency (less than 2 per cent of sick children admitted to a hospital)

This observation is in agreement with one made by Bridge at the Epilepsy Clinic in Baltimore In his book Bridge says, "All of the 119 children in whom the initial seizure was associated with infection were diagnosed originally as having febrile convulsions Yet, as time elapsed, it became clear that in them the correct diagnosis was epilepsy"¹⁶

In order to evaluate the recent reports minimizing the importance of febrile convulsions and to explain my classification, I reviewed the 3,000 cases of convulsions which I have seen in the past twenty-four years, most of which were seen in private practice In my series I was able to select 128 cases from those classified under "acute infection" which might be designated as cases of febrile convulsions according to the definition given previously Of these 128, 51 patients, or 40 per cent, had fever initially but continued to have convulsions without fever, 41 patients (31 per cent) had one convulsion with fever, and 36 patients (29 per cent) continued to have recurring convulsions only with fever

Seventy-two, or 56 per cent of the patients were male and 56, or 44 per cent, female The family history in siblings, parents and/or near relatives showed convulsions in 91 (71 per cent), of which 29 (22 per cent) were febrile (the accompanying table)

The most valuable diagnostic aid in this study has been the electroencephalogram No study of convulsions is complete without this aid In this series it was possible to make one or more electroencephalograms on 88 patients, or 68 per cent of the series Of these, 76, or 86 per cent of those made, showed abnormalities indicating cerebral dysrhythmia or organic lesions Twelve were normal In 40 patients the electroencephalograms had not been obtained at the time of writing Electroencephalograms on siblings of the patients showed abnormalities in 6 and normal conditions in 2, on the parents, abnormalities in 3 and normal conditions in 7 A larger series will have much greater significance Many of these patients were seen before the electroencephalograph was available to me Others could not be brought to my office for this study

The birth history, or method of delivery, was normal in 64 patients, indicated probable brain injury in 27, had been by cesarean section in 6 and was not obtained in 31

Forty-two of the patients had the first convulsion in the first year of life, 51 in the second year, 17

Family History of Convulsions

	No with Convulsions	No with Febrile Convulsions
Siblings	14	9
Parents	19	12
Near relatives	58	8
Total	91 (71%)	29 (22%)

between the second and third years, 10 between the third and fifth years and 8 between the fifth and tenth years Thus, 73 per cent of the patients had the first convulsion in the first two years of life and 93 per cent before the fifth year There were none after the tenth year

Since this study has been in progress for about twenty-five years, many patients have been followed for a long time This makes it possible, in a follow-up study, to establish certain diagnoses and correct or verify others Therefore the final diagnoses, when they can be established, are of particular significance and importance The final diagnoses were febrile convulsions, no further distinction possible, in 49 patients, idiopathic epilepsy in 40, cerebral injury residue in 19 and miscellaneous in 20

The results of treatment in this series with various anticonvulsant drugs, including phethenylate (thiantoin) sodium, gemonil (5,5-diethyl 1-methyl barbituric acid) and phenurone (phenacetylurea, alpha-phenyl acetourea) are as follows complete control or freedom of seizures, 20 patients, improved control 22 patients, no control, 12 patients, and unsatisfactory cooperation or treatment, 74 patients Only those patients who had diagnostic changes, shown by the electroencephalogram, or more than one seizure per month were treated

COMMENT

This study of the largest series of fever convulsions followed for the longest period of time and made with the aid of electroencephalographic studies represents a

11 Buchanan D M Clin North America 30 163 (Jan) 1946

12 Lennox M A Research Nerv & Ment Dis. Proc. 26 342 1947

13 Lennox M J Pediat. 36: 427 (Oct) 1949

14 Peterman M G Convulsions in Childhood Study of Four Hundred and Nineteen Cases J A M A 99: 546 (Aug 13) 1932

15 Yannet H and others Pediatrics 4: 682 (Nov) 1949

16 Bridge E M Epilepsy and Convulsive Disorders in Children New York McGraw Hill Book Company 1949 p 116

cross section or survey of the convulsive state in children in Wisconsin. Convulsions are not common in the average general practice, but they are the most serious symptoms which can occur. The febrile convulsion or the major seizure which is precipitated by a rapid rise in body temperature to a threshold level which is peculiar to each person with a potential cerebral dysrhythmia is the least common of the convulsive disorders. Only 128 cases of febrile convulsions were found in 3,000 cases of convulsive disorders. A diagnostic distinction is made between febrile convulsions in which the fever precedes and precipitates the convulsion and the fevers of infectious origin in which the convulsion may accompany or follow the invasion of the central nervous system, with a subsequent rise in body temperature.

This series of cases demonstrates that the child who has febrile convulsions, or even only one convulsion, usually has a serious disorder of the nervous system with a 15 per cent chance of complete control under treatment, a 17 per cent chance of good control and a 9 per cent chance of no response to treatment. The majority, 86 per cent, of patients have their first febrile convulsion before the age of 3 years.

The high incidence (71 per cent) of convulsions in the family or among the near relatives of these patients indicates that the convulsive disorder or state is inherited. This evidence coincides with the subsequent development of epilepsy in 31 per cent. It is possible that further study, particularly with electroencephalography, would reveal cerebral dysrhythmia in many of the 38 per cent with the unsatisfactory or incomplete diagnosis of febrile convulsions. The electroencephalographic observations will not be detailed here because the study is still in its early development and the observations are controversial in nature.

CONCLUSIONS

A febrile convulsion may be distinguished from the other convulsions associated with acute infection by the arbitrary definition of a major seizure associated with a rapid rise in temperature to a certain level, specific for each child, with a convulsive disorder. The fever usually precedes and precipitates the seizure.

Every convulsion in childhood demands a thorough study, including an electroencephalogram and an attempt to make a diagnosis. This is necessary as a guide for treatment, particularly today, with the new drugs available.

The high percentage of family histories of convulsions, electroencephalograms showing abnormalities and subsequent development of epilepsy indicates that the convulsive disorder is inherited.

The immediate treatment in the febrile convulsion must be the reduction of the fever. However, the next problem, of equal importance and urgency, is the establishment of the diagnosis, as the basis for further treatment and prevention of recurrence. After that the drugs of choice are phenobarbital, phethenylate, gemonil (5,5-diethyl 1-methyl barbituric acid), phenurone (phenacetylurea, alpha-phenyl acetourea) and diphenylhydantoin sodium, depending on the diagnosis. The treatment must be continued for at least one year after the last convulsion and after the electroencephalogram becomes normal.

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EMPIRIC RISK FIGURES IN MONGOLISM

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Knowledge of the etiology of mongolism is still deficient. The main point of controversy seems to be whether genetic factors have any significance. Penrose¹ and Hanhart² are of the opinion that they do. Benda³ denies that heredity has anything to do with mongolism. We are of the opinion that genotypic factors inherent in the embryo, play some yet obscure part in the etiology. Whatever may be the etiologic background of this condition, it is possible to calculate empiric risk figures in the sense elaborated by the Rudin school in Germany which may be useful in counseling.

FREQUENCY OF MONGOLISM

In the Population—The frequency of mongolism among newborn infants is not exactly known. Penrose¹ gives an estimation of 1/600 births. Doxiades and Portius⁴ estimate the frequency in Northern Germany and Berlin at about 1/7000. This figure, however, accounts only for patients admitted to institutions or otherwise known to public health organizations. It may therefore be considered to be too low. Furthermore it must be taken into consideration that mongoloid babies

TABLE 1—Frequency of Mongolism According to Age Groups in a North Swedish Population

	Age of Child				Total
	0-5	5-10	10-15	15-20	
Mongoloid children	2	6	1	1	10
Population	1,285	1,200	1,000	746	4,231
Rate	1/643	1/210	1/1,005	1/746	1/423

have a low resistance to infections and a higher rate of mortality during infancy and childhood. The frequency of mongolism will therefore vary inversely with the age group taken into consideration.

One of us (J. A. B.)⁵ recently, during extensive field work, personally examined all patients with severe mental deficiency (idiocy, imbecility and all known clinical types of feeble-mindedness, without respect to the degree of mental impairment), psychoses and convulsive disorders in a relatively isolated North Swedish population of 8,651 persons (figure of 1945). So far a conclusive diagnosis of mongolism has been made in 10 cases. Referred to the total population this gives a frequency of about 1/1,000. The important figure however is the morbidity risk, by which we mean the proportion of newborn infants who will be mongoloid. In calculating the morbidity risk figure the raised mortality in mongolism must be taken into consideration. Few persons with mongolism will survive more than 25 years. In the present material the oldest patient

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Special research fellow of the United States Public Health Service 1950-1951 (Dr. Böök).
1. Penrose, L. S. Some Genetic Problems in Mental Deficiency. *J. Ment. Sc.* 84: 693, 1938.
2. Hanhart, E. Neue familiäre Fälle von mongoloidem Schwachsinn als Beweis für die Mitwirkung von Erbfaktoren. *Arch. d. Julius-Klaus-Stiftg. f. Vererb.-forsch.* 19: 549, 1944.
3. Benda, C. E. *Mongolism and Cretinism*. New York: Grune & Stratton Inc. 1949, 316 pp.
4. Doxiades, L., and Portius, W. Zur Ätiologie des Mongolismus unter besonderer Berücksichtigung der Sippenbefunde. *Ztschr. f. menschl. Vererb. u. Konstitutionslehre* 21: 384, 1938.
5. Böök, J. A. *Clinical and Genetical Studies in a North Swedish Population*. unpublished data.

was 16 years of age. The frequency of mongolism according to the different age groups is given in table 1. In the youngest age group we assume that a number of cases have been missed. Some patients may have died of congenital heart disease without their mongoloid condition being recognized, and some cases simply may not have been discovered. In the other groups, however, the material may be considered complete, as every case will inevitably be recognized when the child reaches school age. Therefore the frequency of mongolism in the age group of 5 to 10 years will probably give the best estimation. In this group most persons with mongolism will still be alive. The present material is small and evidently has a considerable statistical error, but, if the actual frequency or morbidity risk is calculated on the basis of the total population between birth and 20 years of age, the figure of about 1/400 is reached. It is possible that the frequency of mongolism is different in different populations but for practical purposes it may be assumed that the true value lies somewhere between 1/500 and 1/1,500 newborn, probably closer to 1/500.

Among Siblings of Persons with Mongolism—Penrose⁶ gives a table from which it can be calculated that, among 814 siblings of 217 persons with mongolism, 7 were mongoloid. This gives a frequency of 0.85 per cent. Penrose⁷ reported 63 persons with mongolism, with a total of 271 siblings of which 4 were affected. This is a frequency of 1.47 per cent. If the mongoloid children had been evenly distributed according to the different birth ranks the correct inheritance risk figure would have been about 1 per cent. However, the birth rank distribution shows an excess of mongolism in the higher ranks and this must be taken into consideration. What physicians actually want to know for counseling is not the frequency of mongolism among all siblings but the risk figure for children born after the appearance of the first mongoloid child in the family. This risk may be estimated from a recalculation of the appendix table in Penrose's paper.⁷ Among a total number of 153 children born alive subsequent to the first mongoloid child, 6 were mongoloid. This gives an empiric risk figure of 3.9 per cent.

A woman who has borne a mongoloid child and asks her physician what may be the risk of having another child similarly affected therefore should have the answer that the chance is about 1/25. She will take a risk which is actually 20 to 60 times greater than if no mongoloid child had been born in her family. As a general rule the counselor in clinical genetics should explain the situation carefully to the mother (most of them find it hard to understand what is meant by statistical chance) and leave the decision concerning further pregnancies to her. Furthermore, it seems important to point out that risk figures of this kind should not be used in such a way as to frighten the patient. On the contrary, as many patients believe that the outlook is much worse than it actually is, they may rather be reassured by getting a proper explanation. By giving the patient the correct answer instead of dismissing the problem by saying there is no risk, the

physician may avoid an embarrassing situation if a patient should return with another mongoloid baby. That may happen in 1 case in 25.

RISK FIGURES AND AGE OF MOTHER

Benda⁸ states that 12.5 per cent of all children born to women over the age of 44 will be mongoloid. On this point he quoted Bennholdt-Thomsen,⁸ who reported 36 cases of mongolism. In 5 cases the mother was over 44 at the time the mongoloid baby was born. These cases were collected during a period of 10 years in the University Pediatric Clinic in Munich. The next step was to calculate the age distribution of mothers of non-mongoloid children. This distribution was based on the ages of the mothers of all children first admitted to the same clinic in one year. Among 935 mothers 4 were over the age of 44. Assuming the same distribution over a ten year period, the frequency of mothers over 44 with mongoloid children among all mothers over 44 would be 5/40, or 12.5 per cent. Bennholdt-Thomsen, who, however, qualifies himself by saying, "*da zeigt sich, dass der prozentuale Anteil der Mongolenmutter unter den Frauen von 40 oder mehr Jahren ein emmenter ist,*" and Benda,⁹ who quotes him, apparently did not realize that the material is heavily biased and does not permit a general conclusion. Thus

TABLE 2—Maternal Age Factor in Mongolism According to Benda⁸ and Malzberg⁹

Age of Mother	No of Mongoloid Children		Total	Percentage
	Benda	Malzberg		
Under 20	4	22	26	2.4
20-24	20	97	123	11.6
25-29	29	131	160	15.1
30-34	48	148	196	18.5
35-39	84	216	300	28.2
40-44	56	167	223	21.0
45 and over	8	20	28	3.2
Total	205	807	1,002	100.0

when Benda states "But among 100 pregnant women of 45 to 47, more than 12 will have a mongoloid child, and if the age approaches 50, the number of pathological pregnancies will reach a percentage of more than 25," the data have been used in an illegitimate fashion. For one thing the material is small, but, more important, the only conclusion that is valid in this case is that among those mothers who in the years 1920 to 1929 brought their children to the Pediatric Clinic in Munich and were over 44 years of age 12.5 per cent had a mongoloid child. That a number of mothers over the age of 44 in the population from which the mongoloid children were drawn had no particular reason to visit the clinic evidently has escaped both authors. However, there remains no doubt that maternal age is an important factor in the etiology of mongolism. There is a general increase of risk with advanced age, and it seems important to arrive at a reasonable estimate. This can be achieved as follows.

As basic material for our calculation we have used two series of mongolism reported by Benda⁸ and Malzberg⁹. These give a total of 1,062 cases. The age distribution of the mothers is shown in table 2. With the total number of live births in the state of New York during 1946 and with the actual age distribution

⁶ Penrose L. S. A Method of Separating the Relative Aetiological Effects of Birth Order and Maternal Age in Mongolism. *Ann Eugenics* 6: 108 1934

⁷ Penrose L. S. Maternal Age, Order of Birth and Developmental Abnormalities. *J Ment Sc* 85: 1141 1939

⁸ Bennholdt-Thomsen C. Ueber den Mongolismus und andere angeborene Abartungen in ihrer Beziehung zu hohem Alter der Mutter. *Ztschr f Kinderh* 53: 427 1932

⁹ Malzberg B. Some Statistical Aspects of Mongolism. *Am J Ment Deficency* 54: 265 1950

of the mothers, the expected number of mongoloid children in each age group was calculated for the assumed frequencies of mongolism in the population at 1 500, 1 1,000 and 1 1,500 (table 3) After that the risk figure for each age group can easily be calculated (table 4)

It will be seen that, if the frequency of mongolism is assumed to be 1 500, the statistical risk figure for women over 44 years of age will be about 6 per cent and correspondingly less with a lower frequency in the population It should be stressed that the risk figures are purely empiric and do not imply any particular theory about the etiology of mongolism, hereditary or environmental

From a practical point of view the following prognosis may be given A woman who already has a mongoloid child runs a statistical chance of about 4 per cent of having another mongoloid child If the parents want another child they should be told that the younger

TABLE 3—Live Births Among the White Population of New York State During 1946, According to Age of Mother and Expected Number of Children with Mongolism

Age of Mother	No Live Births	Expected No of Mongoloid Children if the Frequency of Mongolism in the Population Is		
		1 500	1 1,000	1 1,500
Under 20	11,347	13	0	4
20-24	72,315	62	31	22
25-29	88,711	81	41	28
30-34	91,685	100	50	35
35-39	28,857	152	76	53
40-44	5,749	113	56	40
45 and over	283	17	9	6
Total	268,947	538	269	188

TABLE 4—Percentage Risk Figure of the Incidence of Mongoloid Children for Mothers of Different Ages

Sample Frequencies of Mongolism in the General Population	Age of Mother						
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over
1 500	0.11	0.09	0.09	0.16	0.54	1.97	6.01
1 1,000	0.05	0.04	0.05	0.10	0.26	0.97	3.18
1 1,500	0.04	0.03	0.03	0.06	0.18	0.70	2.12

the woman is during the next pregnancy, the better prognosis can be given Any woman who becomes pregnant after she is 40 runs a statistical chance of about 1 to 6 per cent of having a mongoloid child This is perhaps not so important from the point of view of counseling, as any physician will advise a woman to have her children before she is 35, but it adds to this general rule However, the consideration of these facts may become more important if the present tendency to postpone childbearing increases in the "civilized" communities

SUMMARY

The empiric risk figures for mongolism may be summarized as follows

- 1 A woman who has borne a mongoloid child runs a statistical chance of about 4 per cent of having the next pregnancy result in the birth of another mongoloid child This implies a 40 times greater risk than the average at all ages
- 2 Any woman who becomes pregnant after she is 40 runs a statistical chance of about 1 to 6 per cent (table 4) of having a mongoloid child
- 3 The frequency of mongolism in the general population is estimated to be somewhat between 1 500 and 1 1,500

STUTTERING—THE PROBLEM TODAY

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Stuttering has been recognized as a speech disorder from time immemorial Moses is said to have been a stutterer In spite of this there are only a few basic facts known about the disorder Stuttering is not limited to nor is it more common in certain levels of society It afflicts the rich and the poor the great and the near great, the statesman, the professional man, the scientist and the laborer It occurs in about 1 to 2 per cent of the population It is more common in boys than in girls, the proportion being approximately 4 to 1 and its tendency to persist is more common among boys The condition always begins in early childhood and oddly enough occurs during those years when the child's articulation as a whole tends to improve and become more distinct

Stuttering may be defined as the disturbance in the rhythm of speech characterized by intermittent or irregular spasmodic blocking or repetition of sounds and words The symptomatology of stuttering can best be understood if it is borne in mind that speech is the medium of social contact and the means of expressing thoughts, feelings and ideas It is now recognized that even in disorders of definite organic etiology there are emotional factors that play a role in the symptom complex Goldstein¹ referred to this as the organismic approach He stated that not all deviations of behavior are directly related to the underlying defect but some are the expressions of protective mechanisms which the organism utilizes against the disastrous consequence of the defect Stuttering, as it unfolds itself from its early onset, is an outstanding example of a disorder wherein the emotional factors gradually play a greater and greater part and, finally, assume a dominant role

DEVELOPMENT OF SYMPTOMS

At the onset, the child of about 3 or 4 may begin to repeat words or sounds He may show only an occasional slight hesitation in his speech and while speaking may stop suddenly as if groping for a word A great deal has been said in recent literature to show that these early repetitions of the stutterer are in no way different from the repetitions often heard in non-stuttering children of the same age group This is true, but the same is true of headache as a symptom, which may be due to temper tantrums or may indicate the beginning of a brain tumor In many cases a period of observation may be required before a definite diagnosis is made The normal or physiologic period of hesitancy or repetition of words is of relatively short duration but will last longer in the child who is a stutterer Van Riper² pointed out that the nonstuttering child repeats words and phrases while the young stutterer's speech has a much greater proportion of syllable repetition The normal child will say, "Mother, Mother, may I have, may I have ?" The young stutterer will say, "Muh-muh-mother, may I I have ?" Within a few weeks or months, as the child's vocabulary increases, a certain amount of tenseness will become apparent in his repetition of word

From the Speech Clinic, Pediatric Department, Jewish Hospital of Brooklyn.
1 Goldstein, K. Language and Language Disturbances, Aphasia, Symptom Complexes and Their Significance for Medicine and Therapy, Language, New York, Grune & Stratton, Inc. 1948.
2 Van Riper, C. Speech Correction, Principles and Methods, Prentice Hall Speech and Drama Series, ed. 2, New York, Prentice Hall, 1947.

or sounds. This is due to the spasmodic contractions of the muscles concerned with speech such as those of the lips, tongue, jaw or larynx. The spasm may be tonic, the parts involved remaining tense or showing only a slight quiver until the sound is forced through. In other cases the spasm is clonic, producing explosive repetition of the same sounds.

As the stuttering becomes more definite the parents may become concerned. Often an outsider may call the mother's attention to the child's difficulty. A playmate may mimic him. The mother may now tell the child "Speak clearly. Say it over again," or, "Talk slowly. Think before you speak." The child now becomes conscious of his speech difficulty and as a result a cardinal psychologic symptom makes its appearance. He begins for the first time to show anxiety when he talks. He may put his hand to his mouth when he begins to stutter, or he may turn his head away from the person to whom he is speaking. His face may take on a questioning appearance when he turns to his mother in order to ascertain the reaction she exhibits toward his speech. He will begin to show tensions and spasmodic movements in other parts of the body. Twitching of the eyes, jerking movements of the head, contortions of the face, clenching of fists and stamping of feet may appear singly or in various combinations. The synchronous activity of the respiratory muscles may become disrupted. During these spasms the stutterer frequently tries to speak on inspiration, the attempt resulting in short inspiratory gasping movements until, apparently exhausted, he forces out the word on expiration. At times he may give the momentary impression of undergoing a convulsive seizure.

The next stage in this picture is the school child between 6 and 12 years of age. In addition to the stuttering and moderate anxiety, mild difficulties in personality adjustment gradually develop. The child's anxiety becomes more pronounced and in addition he begins to experience a specific fear of talking. In the classroom he will hold himself back from raising his hand to ask questions. He refuses to go on errands. The teacher, not to embarrass him, calls on him less frequently. He is not given any part in plays. He becomes sensitive to ridicule and may resent correction. The resultant loss of confidence and security in speech situations may gradually lower his self esteem. Should stuttering appear in the course of a conversation, he would rather stop talking instead of completing the sentence.

Outside of these immediate speech situations, the average child of this period of life has many absorbing interests and activities. Phantasy at this period of his life, is an important part of his developing personality. As a result of this he usually reacts to his speech difficulty with more or less indifference. The stuttering school child does not reveal outstanding emotional or behavior problems different in degree or kind from those of the nonstutterer. He does not feel himself greatly handicapped. One may call this a latent period in the emotional influence of stuttering on his personality.

The adolescent or the young adult presents the classic picture. Stuttering is severe, anxiety is pronounced and there is fear of speech with resultant difficulties in personality and adjustment. The speech defect becomes a dominant factor in his language function. He may become less sociable and more introverted. He may acquire a tendency to shyness, and usually a sense of inferiority develops. Eventually, he may indulge in

self pity and may use his speech difficulty to rationalize all his shortcomings and failures. The pattern of stuttering may be so ingrained in his personality that it becomes his distinctive badge. He may actually be surprised if he manages to say a few sentences well. The stuttering has become a part of him. He will experience invisible stuttering. He may think of a sentence he would like to say and he will actually feel that a certain word will give him difficulty if he were to say it. Other concomitant invisible signs that he may experience before talking are the feelings of tension in the chest and throat, flushing of face, palpitation and sweating of the hands, and the entire body may assume a set posture as if facing danger.

This is the picture of a stutterer who has carried his difficulty with him since early childhood. He represents, more or less, the climactic end result of various emotional complexes which he had built up in an effort to adjust himself to a difficulty which has great social implications.

Basically, however, his personality as a whole is just as varied as that of the nonstutterer. He has the capacity to lead a normal life by adjusting himself to his difficulty. He is self sufficient. Stutterers are found among physicians, dentists, teachers, lawyers, clerks, musicians, preachers, laborers, kings and statesmen. They marry, raise families and have just as many or just as little marital problems as nonstutterers. Some stutterers will say they could have done better in some other endeavor of life if it were not for their difficulty, but there are just as many nonstutterers who believe that they were really destined to do something "better" than what they are actually doing.

The adult stutterer presents a much more subdued picture. He has matured physically and emotionally. By trial and error, a pattern of speech has developed which has a minimum of stuttering, he has learned to live with his difficulty. There are more child stutterers than adult stutterers. Some outgrow their difficulty, and some continue to stutter badly, while many an adult stutters only occasionally, as under stress or emotional excitement and in normal conditions speaks well.

LABORATORY FINDINGS

Biochemical studies have not revealed significant differences between stutterers and nonstutterers. Results have been within the normal range.³ It is of interest, however, that statistically it was found that there is a difference, perhaps significant, in potassium values. Stutterers have a lower potassium value than normal persons. There are a number of observations that suggest that potassium ions may play some part in the transmission of the nerve impulse in autonomic ganglions. A dose of potassium, insufficient to act alone, enhances the response of ganglion cells to preganglionic stimulation and to the action of acetylcholine.

Electroencephalographic and laterality studies of stutterers and nonstutterers did not reveal conclusive results. Investigations by Rheinberger, Berman and me⁴ led us to state in the summary that comparisons of the laterality tendencies and the electroencephalographic patterns of 10 stuttering and 10 nonstuttering boys disclosed an essential similarity between the two groups. It may be noted, however, that in our laterality

3. Karlin I. W. and Sobel A. E. A Comparative Study of the Blood Chemistry of Stutterers and Non Stutterers. *Speech Monographs* 7: 75, 1940.

4. Rheinberger M. B., Karlin I. W. and Berman A. B. Electroencephalographic and Laterality Studies of Stuttering and Non Stuttering Children. *Nerv. Child* 2: 117, 1943.

studies there were differences sufficient to suggest that the stutterers had somewhat less unilaterality than did the nonstutterers. Also, in the electroencephalographic studies it was noted that children with severe stutter and/or no improvement in speech showed a greater incidence of positive response to hyperventilation than those whose defect was less severe (83 per cent against 50 per cent). It must be emphasized that similar trends were noted in children showing asocial behavior and family history of allergy.

Endocrine disorders may play a role in distorted speech,⁵ and, while there is no evidence at present, they may also have a part in stuttering.

ETIOLOGY

There is no definite knowledge of the cause of stuttering. There are several theories that have valid reasoning, but none of them stand up under critical analysis. The interest in the study of speech and speech disorders (except aphasia) and the progress made in this field are mainly due to the educator and the psychologist. Probably because of the type of training and later work, a theory of stuttering propounded by the educator may appear to be greatly different from a theory propounded by the physician. A closer analysis, however, will reveal that perhaps the difference is mainly that of emphasis and that there is a common denominator among the various points of view. One has to be eclectic in his approach to this problem.

The earlier theories regarded stuttering as due to some abnormality of the peripheral organs of speech, such as the mouth, throat or tongue. No one today accepts or considers these theories. To direct the stutterer's attention to his throat or mouth may only accentuate his preoccupation with the visible external structures and fix in his mind the idea that they are the seat of his trouble.

The principal current theories concerning stuttering are as follows:

1 Stuttering is a functional disorder and is considered a psychoneurosis, a personality disorder or an index of social maladjustment. The psychoanalytic school refers to stuttering as an oral neurosis in which the libido becomes fixed at the oral erotic stage of development.⁶ Others regard stuttering as an anxiety neurosis,⁷ or as due to a lack of integration of the personality of the stutterer,⁸ or to an inability to adjust socially.⁹ In brief, stuttering, according to these theories, is an outward expression of an underlying emotional maladjustment. The outstanding emotional characteristics are fear, anxiety and asocial behavior.

However, any type of abnormality, such as stuttering, will cause the emergence of certain compensatory mechanisms which will color, to a greater or lesser extent, the daily activities of an otherwise normal person. One may well assume that the emotional characteristics of the stutterer, instead of being the cause of this stuttering, are actually the result of his adjustment to a difficulty which has great social implications.

2 Stuttering is a habit¹⁰ or a behavior that is learned.¹¹ Johnson¹² elaborated this theory, and referred to stuttering as a "diagnosogenic" and a "semantogenic" disorder. According to this theory it is the parent's diagnosis and their attitude toward the child's speech that are the principal factors in the cure of the disorder. Johnson identified the early repetitions of the child stutterer with the repetitions that many normal children have. It is when the parents diagnose the repetitions as stuttering, are concerned about them and begin to correct and advise the child that stuttering results. According to this theory, stuttering is due to a faulty diagnosis in a semantic environment. While the theory that stuttering is a psychoneurosis places the emphasis on the child, the diagnosogenic theory shifts the emphasis to the parent.

It would appear from this theory that there is no such entity as stuttering until the parents make the faulty diagnosis and begin to be concerned about the child's hesitations and repetitions. It is well to remember that the majority of mothers do not make a diagnosis and begin to be concerned about the child's speech until it appears to be different from the average speech of a child at the same age level. The difference, for a time, may be only in degree but not in kind. By and large, by the time the parents diagnose and begin to be concerned about the child's speech he has already been stuttering a long time. It is a fact that 1 per cent of the population are stutterers. Is it that the parents of this 1 per cent of children are so different from the parents of the 99 per cent who do not start stuttering? How does this theory explain that there are 4 or 5 boy stutterers to every girl stutterer? This theory is simple and plausible, but does it really explain such a deep seated, malignant disorder as stuttering? Not only, according to this theory, is the faulty diagnosis by the parents of the child's speech the basis for his stuttering but also, according to Brown,¹³ who accepts this theory, failure in the treatment of stuttering almost always occurs when the parents are unwilling or unable to accept the explanation given them by the therapist. No one can minimize the importance of parental attitudes in the treatment of stuttering. At the present stage of our knowledge, however, the clinician must assume some, if not the major, share of responsibility for failure to achieve results.

3 Stuttering is basically an organic disorder of the language function. Orton¹⁴ and Travis¹⁵ have advanced the theory of cerebral dominance. Stuttering is considered mainly to be the result of a conflict between the two cerebral hemispheres, caused by the lack of development of a dominant gradient. Stuttering, according to this theory, is related to left-handedness in that normally left-handed children who are forced to use their right hand may acquire a stutter because of the lack of development of the dominant hemisphere.

I have proposed a psychosomatic theory,¹⁶ according to which the basis for stuttering is a delay or a slower

10 McDowell E. Educational and Emotional Adjustments of Stuttering Children. Contributions to Education no. 314 Teachers College Columbia University, New York 1928 p. 1.

11 Johnson W. and others. A Study of the Onset and Development of Stuttering. J. Speech Disorders 7: 251 1942.

12 Johnson W. People in Quandaries. The Semantics of Personality Adjustment. New York: Harper & Brothers 1946.

13 Brown S. W. Advising Parents of Early Stutterers. Pediatrics 4: 170 1949.

14 Orton S. T. Reading, Writing and Speech Problems in Children. A Presentation of Certain Types of Disorders in the Development of the Language Faculty. New York, W. W. Norton & Company, Inc. 1937.

15 Travis L. E. Speech Pathology. A Dynamic Neurological Treatment of Normal Speech and Speech Deviations. New York: D. Appleton and Company 1931.

16 Karlin I. W. A Psychosomatic Theory of Stuttering. J. Speech Disorders 12: 319 1947.

5 Karlin I. W., Youtz A. C., and Kennedy L. Distorted Speech in Young Children. Am. J. Dis. Child. 59: 1203 (June) 1940.

6 Coriat I. M. Stammering. A Psychoanalytic Interpretation. Nervous and Mental Disease Monograph 47. New York: Nervous and Mental Disease Publishing Company 1928.

7 Appelt, A. The Real Cause of Stammering and Its Permanent Cure. London, Methuen & Co. 1911.

8 Greene J. S. The Stutter Type Personality. New York State J. Med. 36: 757 1936.

9 Fletcher J. M. The Problem of Stuttering. A Diagnosis and a Plan of Treatment. New York: Longmans Green & Company 1928.

progress of myelination of the cortical areas concerned with speech

In conformity with biologic laws, function appears only when the structures that perform that function become mature. Myelination is regarded as correlated with function. For instance, an infant begins to maintain equilibrium and perform coordinated movements such as crawling and standing only when certain tracts begin to myelinate. The most precise and most completely coordinated reactions are those which involve mainly conduction pathways which become myelinated early.¹⁷ A nerve fiber that has not been completely myelinated may transmit impulses, but the resulting action will lack precision and fine coordination. The myelination of the speech areas in the brain is a comparatively late process in cortical development.

On the psychologic side of development, it is recognized that at about the age of 3 the child enters a period of resistance and negativism.¹⁸ He discovers that he has a world of his own, and at the same time he has a feeling of anxiety and inner insecurity. The parents may have difficulty with his management.

The psychosomatic theory regards stuttering as due to a combination of organic and psychologic factors occurring at approximately the same time. The primary basic factor is a delay in myelination of the cortical speech areas. The secondary factor enters the picture when a child of 3 or 4 years of age having a delay in myelination is exposed to undue emotional stress during this negativistic period. This emotional stress will act as a catalytic agent in producing stuttering. If judiciously managed and if the emotional stress is lessened, the speech will improve as myelination progresses and as the ability to perform the fine coordinated movements necessary for speech becomes fully established.

The major criticism of this theory is that there is no anatomic proof for it. The theory, however, that stuttering is basically due to a retarded process of myelination will explain most of the basic facts about stuttering. Stuttering occurs more often in boys because myelination begins earlier in girls.¹⁹ By the time the girl is 3 or 4 the myelination of her speech areas in the brain is apt to be more advanced than that in the boy. Myelination may not be complete until 20 years of age, and this may be the reason why some stutterers outgrow their difficulty as they grow older and more mature.

That stuttering is basically an organic disorder is supported by the fact that it has a familial tendency. Davenport,²⁰ in discussing nervous diseases which have a genetic basis, stated that stuttering has been shown by Bryant, Estabrook and others to recur in strikingly high incidence in particular families.

PROGNOSIS

The time-honored advice given by the physician, who is usually the first one that the mother consults, is, "Ignore him. Every child repeats, he will outgrow it." But do they all outgrow it? There are children of 3 or 4 years of age who begin to show the early signs of stuttering. The parents are concerned and talk about the condition, but in a relatively short time, with no

therapy, the children go on to normal speech. Then there are the children who begin to show the same mild symptoms as the previous group but soon show definite stuttering. The parents may come for advice and, with therapy at times minimal or without it, the children stop stuttering within a few months or possibly a year and their speech becomes fluent. These two groups comprise about 50 per cent of the children affected by stuttering. The other 50 per cent are those who begin to stutter just as the other group did but whose stuttering continues. They form the 1 to 2 per cent of the population who stutter.

Within this last group, the greatest majority of parents, perhaps 90 per cent of them, take the advice of the physician or neighbor and either ignore the defect completely or employ the usual lay methods. Their children become full stutterers, with all its symptoms and complexes. The remaining 10 per cent of the children in the last group receive what is believed today to be competent help. In spite of this and in spite of the good cooperation of the parents, they continue stuttering into adult life.

There are no tests today by which one can tell which child who begins unduly to hesitate or to repeat words or sentences will start stuttering and which child will have normal speech. The diagnosis of stuttering can be made only when the child stutters when he talks. The rule should be that every child of 3 to 4 years of age who begins to hesitate and repeats words and sentences sufficiently to be noticed should be treated as early as possible. The hope is to rescue some of the children who receive no therapy at all.

TREATMENT

The infant hears many sounds around him which at first are without significance. He soon learns that certain sounds or words are associated with certain experiences, and these in turn acquire an emotional tone. It must be remembered that the young child's life is richly emotional, that he does not acquire all the speech sounds simultaneously but that there is a definite order of progression in the development of speech sounds,²¹ and finally that the development of speech does not proceed at the same rate in every child.²²

The basis for the treatment of stuttering of the pre-school child is to allow further maturation of the cortical speech areas, so that maximum stability and neuromuscular coordination in the function of speech develop, and at the same time to try to hold to a minimum the emotional factors which complicate and accentuate the disorder.

The mother coming to the physician with a child who stutters has already read or heard some of the modern concepts about stuttering. She believes that something she has done or said or some earlier disturbed family relationship has caused the difficulty. She may not even remember when the child first began to stutter, and she is positive that no one paid attention to his speech until stuttering became definite, still she believes that she or the father is to blame. She is dominated by the feeling of guilt, as a result of which she becomes uncertain in the handling of the child. The child senses this uncertainty, and it gives him a feeling of uneasiness and frustration. The parents,

17 Kuntz A. A Text Book of Neuro-Anatomy ed 3 Philadelphia Lea & Febiger 1942

18 Brennemann J. Practice of Pediatrics Hagerstown Md W F Prior Company Inc 1945 vol 4

19 Flechsig P. Meine myelogenetische Hirnlehre mit biographischer Einleitung Berlin Julius Springer 1927

20 Davenport C E. Heredity and Eugenics in Relation to Medicine The Oxford Medicine 1 519 1934

21 West R. Kennedy L and Carr A. The Rehabilitation of Speech A Text Book of Diagnostic and Corrective Procedures New York Harper & Brothers 1937

22 Karlin, I W and Kennedy L. Delay in the Development of Speech Am J Dis Child 51:1138 (May) 1936

especially the mother, must be relieved of this sense of guilt. They should be told that the development of speech is subject to individual variations and that emotional and environmental factors will condition a child to certain types of behavior and performance. Above anything else, he needs a feeling of security and love at home. At the same time, he needs positive guidance. The parents must have a feeling of certainty in handling the child, and they should not interfere with one another in their everyday dealings with him.

The child's attention should not be drawn to his speech difficulty.²³ In his presence the parents should talk in a simple, relaxed and easy manner. They should not try to increase or improve his vocabulary. They should notice the situations or circumstances during which he talks best, and these conditions should be encouraged. Conditions under which he stutters more should be discouraged. Self reliance should be encouraged especially in eating and playing. A period of relaxation should be provided every day during which the mother reads to the child in a calm and easy manner.

A question is frequently posed about the relationship between handedness and stuttering. There would appear to be no reason to believe that there is any. However, every child with a speech disorder should be encouraged to develop his dominant hand, be it left or right. The significant factor is the method used in the enforcement of handedness.

There are no drugs today for the treatment of stuttering, although in children who show decided tension and spasms at the onset of the treatment I use for a short period either bromides or neostigmine and atropine. Phenobarbital appears to make the children more tense and they stutter worse.²⁴

This is the indirect method of treatment of stuttering used with the preschool child. He is not made conscious of his defect, and no direct speech therapy is given. The treatment is through the parents. To ignore the defect or to encourage the false idea that stuttering is nonexistent and that every child hesitates when he talks is to waste much valuable time. The keynote to the problem of stuttering is early recognition and treatment.

The treatment of the older child, the adolescent and the adult is a much more difficult problem. Since his social contacts are wider and more complex, individual problems and their adjustments have to be discussed. The problem of stuttering is discussed freely and openly. This will remove some of the aura of mystery that surrounds it. An effort is made to lessen the stutterer's fears and anxieties and to increase his self confidence. A pattern of speech is provided which is best for him. While many of these problems have to be worked out individually, group therapy has its values and should be made use of.

A question is often asked about the value of hypnosis and psychoanalysis. Neither method has cured stuttering. There are those who say "Once a stutterer, always a stutterer," and there are those who contend that the therapeutic goal is achieved when the stutterer stops being concerned about his defect. The stutterer, however, would like to get rid of his difficulty. This should be the therapeutic goal.

SUMMARY

Stuttering is a disturbance in the rhythm of speech and the symptoms unfold gradually. The principal present day theories are that stuttering is (1) a psychoneurosis or a personality disorder, (2) a habit or a behavior that is learned, and (3) an organic disorder of language function. The theory that it is due primarily to a slower process of myelination of the cortical speech areas offers a satisfactory explanation of the basic facts. Emotional and environmental factors play an important role in unfolding and perpetuating the disorder. Emphasis in the treatment should be on prevention. Every preschool child who shows early signs of stuttering should receive immediate treatment.

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ADMINISTRATION OF AMINOPHYLLINE
(THEOPHYLLINE ETHYLENEDIAMINE)

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and

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Theophylline and related xanthine derivatives are used extensively, at the present time in the management of cardiovascular and respiratory diseases. However, there are conflicting opinions among investigators concerning the therapeutic value of these compounds in clinical conditions for which they are prescribed.

Schack and Waxler¹ have shown that theophylline is restricted to the plasma, does not penetrate the red cell membrane and is only slightly bound to the proteins of the blood. Also, the drug appears to be only slightly bound to tissue proteins, since it was readily removed from the liver by simple perfusion with saline solution. It may therefore be suggested that any therapeutic effect of this drug will be closely related to its level in the blood.

A study was undertaken to evaluate the dosage forms in which these drugs are commonly prescribed for administration by the intravenous, intramuscular, rectal and oral routes. Particular attention has been paid to the rate of appearance and disappearance of the drug in the blood stream and the level of the drug attained. Although this study does not represent an attempt at evaluation of the therapeutic value of theophylline, it is hoped that it will serve as a guide to the most rational dosage forms in further use or investigation of this drug.

METHODS

The theophylline analyses were performed by a method devised by us. Briefly, this method consists of a chloroform-isopropyl alcohol extraction of blood, with final dilution of the theophylline in tenth normal sodium hydroxide solution. The ultraviolet absorption of the alkaline solution is determined in the Beckman model DU spectrophotometer. The method as adapted for this study offers a precision of plus or minus 3 per cent at levels of 100 micrograms of theophylline.

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¹ Schack, J. A. and Waxler, S. H. An Ultraviolet Spectrometric Method for the Determination of Theophylline and Theobromine in Blood and Tissues. *J. Pharmacol. & Exper. Therap.* **97**: 283 (Nov.) 1948.

²³ Karlin, I. W., and Kennedy, L. Stuttering: Problem and Suggested Treatment, *Am. J. Dis. Child.* **55**: 383 (Feb.) 1938.

²⁴ Karlin, I. W. Stuttering. *Arch. Pediat.* **63**: 23 (1946); *Stuttering*, *Am. J. Nursing* **48**: 42 (1948).

phylline per hundred cubic centimeters of blood. We have considered this as the lowest significant blood level of theophylline. All determinations were performed in duplicate and each figure presented represents an average of the two values obtained.

The study was based on 1622 determinations performed on blood samples obtained from 225 persons. Of this number 203 were normal subjects. The remaining 22 subjects, all of whom received aminophylline by the intravenous route, were under treatment for various cardiovascular ailments.

In preparation for the determination all other medications were withheld one day prior to and during the test. In addition coffee tea and kola drinks were omitted from the diet before and during the test period. The subjects were given the generally accepted therapeutic doses of the drug intravenously, 0.25 Gm, intramuscularly, 0.25 and 0.5 Gm rectally, 0.5 Gm, and orally 0.2 and 0.3 Gm. In all but one of the experiments the evaluation was based on a single dose of the aminophylline preparation. One group was given repeated doses over a period of six days. Although the weights of the subjects were noted, no attempt was made to correlate dosage with the patient's weight. The

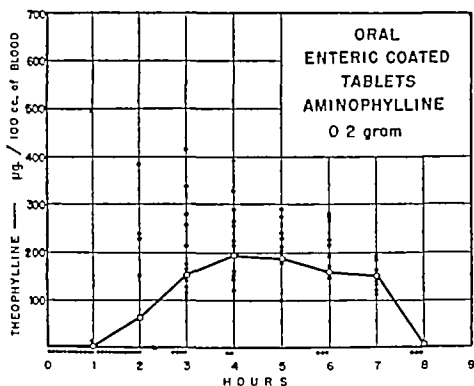


Fig 1—Blood theophylline levels following oral administration of two 0.1 Gm. enteric-coated aminophylline tablets. (Full dots represent individual theophylline levels, open circles represent averages. This holds true for all figures that follow.)

routine procedure consisted of obtaining a preliminary blood sample for "blank" estimation and then administering the aminophylline preparation to the subject. Subsequently at least two and up to eight blood samples were then drawn from each patient at different time intervals. We have used aminophylline (theophylline ethylenediamine), and the determinations measure only the theophylline blood levels of the preparation.

The data have been presented in the form of scatter diagrams to indicate the range of distribution of the values obtained.

RESULTS

Oral—Twenty-four subjects received two enteric-coated 0.1 Gm tablets of aminophylline postprandially. Blood samples were then withdrawn at hourly intervals and the concentration of theophylline determined. Data of figure 1 indicate that in no case was there significant absorption from the gastrointestinal tract during the first hour. Significant blood levels were obtained in only 4 of 16 subjects by the second hour. It was not until the third hour that a significant mean theophylline level appeared. The mean values then rose slightly and maintained a plateau level through the fourth and fifth hours. Thereafter the mean level began to decline,

and at the eighth hour the blood was essentially free of theophylline.

There were some subjects in whose blood no theophylline could be demonstrated at any time after swallowing of the tablets. These apparently represented persons in whom absorption did not occur from the

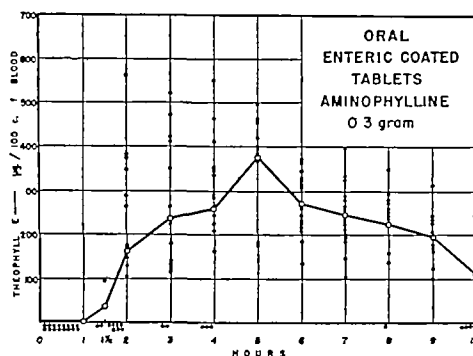


Fig 2—Blood theophylline levels following oral administration of three 0.1 Gm. enteric-coated aminophylline tablets.

alimentary tract. When absorption apparently occurred there was a notably wide range of distribution of theophylline levels in the blood for each time interval examined.

The effects of a somewhat larger dose of enteric-coated aminophylline tablets were next studied. This experiment was similar to the preceding one in all respects except for the increase in the dose of the drug. Forty-three patients were each given three 0.1 Gm enteric-coated aminophylline tablets. Figure 2 represents in scattered form the values obtained with this dose. As before, theophylline was not demonstrable in the blood stream at the end of the first hour. In two hours 10 of the 17 persons tested had appreciable blood levels, which rose further by the third hour. Comparison of this group with the preceding group (fig 1) reveals that the levels attained were noticeably higher and remained relatively more constant for a longer period of time than did the levels of the group receiving the smaller dose. Only at the end of the tenth hour did the theophylline begin to disappear from the blood stream.

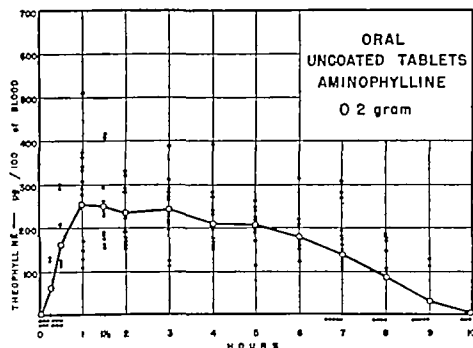


Fig 3—Blood theophylline levels following oral administration of two 0.1 Gm. uncoated aminophylline tablets.

The great variability in the blood levels exhibited by the group given the enteric-coated tablets led us to question whether this variation was inherent in the oral route of administration or was attributable to the enteric coating of the tablets. We therefore compared this type of tablet with plain uncoated aminophylline tablets.

Each of 49 subjects was given (postprandially) two 0.1 Gm uncoated tablets. Subsequent analysis of the blood showed that in 4 of 10 persons (fig 3) significant absorption of theophylline had occurred in fifteen minutes and the number increased to 9 of 15 in one-half hour. By the first hour all the persons so tested had a definite blood theophylline level. The blood levels

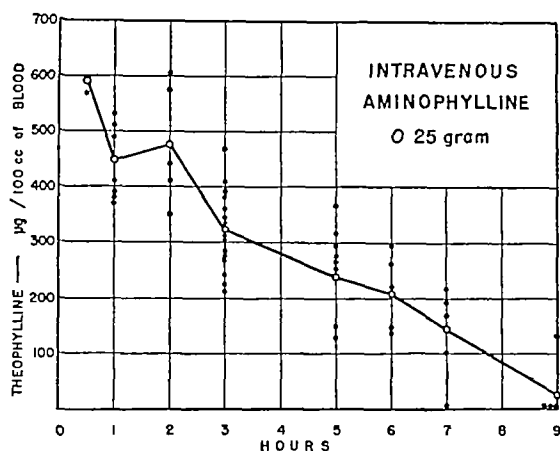


Fig 4—Blood theophylline levels following intravenous administration of 0.25 Gm aminophylline

tended to be higher than those reached with enteric-coated tablets in the same dosage of 0.2 Gm (fig 1). Also, more than half the subjects had definite, demonstrable levels at the end of eight hours with complete disappearance by the tenth hour. There was no failure of absorption of theophylline from the alimentary tract with the uncoated tablet form of dosage.

Intravenous—A group of 22 patients was given an intravenous infusion of 0.25 Gm of aminophylline in 10 cc of saline solution. The fluid was given slowly over a period of five minutes, and blood samples were then drawn at intervals over a period of ten hours. The earliest samples drawn at the half-hour period showed a mean value of 600 micrograms per hundred cubic centimeters of blood (fig 4). There was a progressive gradual decrease in the blood titer of theo-

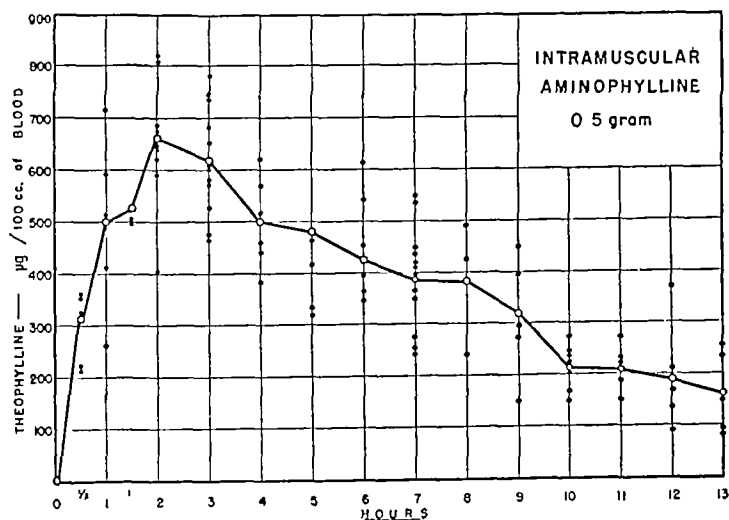


Fig 5—Blood theophylline levels following intramuscular administration of 0.5 Gm aminophylline

phylline from this time until eventual disappearance of the compound from the blood stream at the ninth hour. This is essentially the same curve which is obtained when dogs are given intravenous injections with doses referable to their body weight.

Intramuscular—In one experiment each of 20 subjects received 0.5 Gm (2 cc) of aminophylline into the

gluteal muscles and blood samples were taken during the subsequent thirteen hours. With a single injection of this drug a significant blood level was still evident at the end of this time. Absorption from the muscle was rapid, and a high blood concentration was reached within thirty minutes to one hour. This was maintained throughout the next eight hours and was followed by a gradual decrease of theophylline in the blood (fig 5).

Thirty patients received intramuscular injections with 0.25 Gm (1 cc) of aminophylline. The blood levels which were obtained with this dosage were about 50 per cent lower than those obtained in the previous experiment with the 0.5 Gm dose. Absorption was rapid, and a continuous level was maintained for over five hours. From this time there was a decrease in the level, and by the ninth hour most of the blood samples were negative for theophylline (fig 6).

Rectal—A suppository (0.5 Gm) was inserted about 3 inches (7.62 cm) beyond the anal opening of each of 34 subjects, and the blood theophylline determinations were made during the succeeding ten hours. It was noted that many subjects who were given suppositories showed no blood theophylline level when tested, the

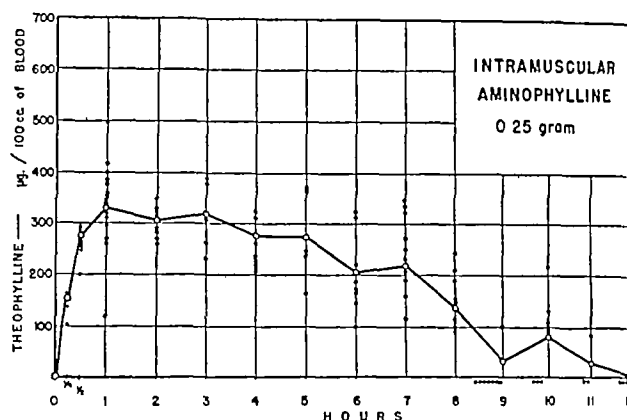


Fig 6—Blood theophylline levels following intramuscular administration of 0.25 Gm aminophylline

suppositories having been expelled shortly after insertion. In figure 7 we have included only those subjects who showed some absorption, as indicated by blood theophylline content. The rectal route of administration resulted in the greatest scattering of values, indicating pronounced individual differences in the absorption of aminophylline from the rectum. Some patients showed no appreciable theophylline levels as late as the fifth and sixth hour after insertion of the suppository, while others had high levels as early as the fourth hour.

Repeated Dosage—To evaluate the blood level attained with repeated doses of aminophylline, 4 patients were given two 0.1 Gm enteric-coated aminophylline tablets three times a day after meals. A premedication blood sample was drawn at the outset, and subsequent blood samples were withdrawn daily (8 a.m. and 8 p.m.). The morning blood sample was taken before breakfast, thus measuring the blood theophylline level achieved with the preceding day's medication. The data of figure 8 show that evening samples contained large amounts of theophylline. None of the morning samples had any definite blood level following the combined 0.6 Gm daily dose. However, when the dosage was increased to 0.9 Gm of aminophylline per day (in 0.3 Gm doses), appreciable blood levels were obtained the following morning. The study was not

continued for a long enough period to allow any judgment to be made concerning accumulation of the drug with continuous administration

COMMENT

A resume of the data brings out certain points. The high initial level obtained by intravenous administration of aminophylline is followed by a progressive decrease

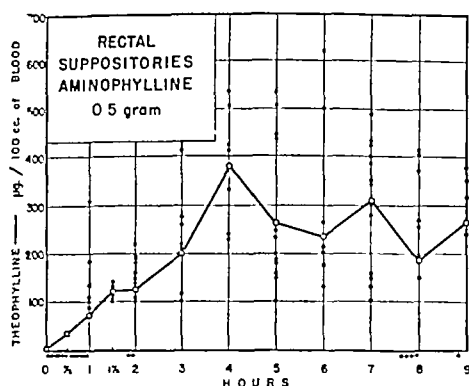


Fig 7—Blood theophylline levels following rectal administration of 0.5 Gm. aminophylline

in the blood level of theophylline and disappearance of the drug from the blood stream in about nine hours. If this form of therapy is the one of choice, it might be suggested that either a higher dosage (0.5 Gm) be given initially or that a second dose be given after about eight hours. At present we do not have enough data on patients with the higher dosage to comment.

Because of the pain attendant on intramuscular injections of aminophylline, this route must be approached with some reservation. It appears, however, to be the optimal route with which to maintain a sustained level over a long period of time. This is particularly true of the 0.5 Gm dose. This quantity appears preferable since the group given the smaller dose complained of as

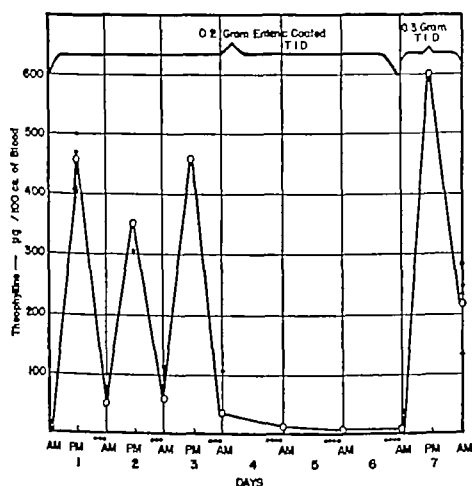


Fig 8—Blood theophylline levels during oral administration of aminophylline (three times a day) over a period of one week

much pain as did the group given the larger dose, and the values obtained with the 0.5 Gm dose were almost twice as high and persisted about double the time period. Apparently the rate of absorption of theophylline from the muscle depot rather closely approximates the overall rate of removal of the drug by excretion and metabolic breakdown. Modification of the pain of

intramuscular injection by admixture of the aminophylline with procaine solution has been attempted with limited success.

The variation of absorption encountered with enteric-coated tablets was not unexpected. The degree of absorption of such preparations seems to depend on the ability of the subject to digest away the coating, thus making the drug available. It may be noted that in our experiments two and three enteric-coated tablets were given to obtain the desired dosage rather than a single tablet. Probably this increased the chances of absorption through utilization of at least one of the tablets. From the results, 0.2 Gm of aminophylline is not sufficient to maintain a level through a twenty-four hour period even if given three to four times a day. Increasing the dose to 0.3 Gm tends to maintain a twenty-four hour level if given three to four times during a day.

When plain uncoated tablets are utilized, the factor of unreliability of absorption appears to be eliminated. The tablet seems readily absorbed, and in no case did it pass through the alimentary canal without the occurrence of absorption, as judged by blood theophylline levels. In addition the level achieved in the blood is proportional to the amount of drug given, and high levels of theophylline are obtainable with the oral route. The uncoated preparation appears to be the more logical choice when the oral route is indicated.

The results obtained with the rectal suppositories were varied. Some subjects showed satisfactory absorption while others showed no level until many hours after insertion of the suppository. Absorption from the rectum appears to be dependent on retention of the suppository for a long enough time to allow melting of the vehicle and subsequent absorption of the contained medicament.

SUMMARY

1 The theophylline levels in the circulating blood have been studied after the administration of various doses of a theophylline preparation, aminophylline, by the intravenous, intramuscular, oral and rectal routes.

2 Intravenous injection of 0.25 Gm of aminophylline is followed by a progressive fall of blood levels approaching zero concentration by nine hours.

3 Intramuscular injection of 0.5 Gm of aminophylline results in sustained high blood levels of theophylline. Appreciable levels persist for about thirteen hours. With a smaller dose of 0.25 Gm, the levels are 50 per cent lower and persist about eight hours.

4 There is wide variation in the blood levels after oral ingestion of enteric-coated aminophylline tablets. About two hours are required before theophylline can be demonstrated in the blood stream with 0.2 or 0.3 Gm doses. Significant levels of theophylline persist for seven hours with the smaller dose and ten hours with the larger dose.

5 There is a regular rapid appearance of theophylline in the circulating blood as early as fifteen minutes after ingestion of a 0.2 Gm uncoated aminophylline tablet. Significant levels of theophylline persist for nine hours.

6 The blood levels obtained with 0.5 Gm aminophylline suppositories show wide variation.

7 In view of these results, future studies of the usefulness of theophylline preparations should be based on the blood levels of the drug achieved rather than on the total dose given by various routes.

Clinical Notes, Suggestions and New Instruments

EXOGENOUS HEMOCHROMATOSIS FOLLOWING MULTIPLE BLOOD TRANSFUSIONS

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Hemochromatosis was originally described by Hartman and Chausser in 1882. It was called "bronze diabetes" because of the associated conditions of diabetes mellitus and skin pigmentation. In 1889 Von Recklinghausen revealed that the pigmentation of skin and viscera was the result of deposits of hemosiderin and hemofuscin.

Hemochromatosis has been considered rare. At the time of the last complete review of the literature in 1941,¹ there were 436 reported cases. The usual picture in fully developed hemochromatosis shows (a) an enlarged liver (caused by a hypertrophic type of cirrhosis), (b) a bronze pigmentation of the skin, which usually has a peculiar slate-blue color or a metallic appearance, (c) diabetes mellitus and, possibly, (d) a form of sexual hypoplasia characterized by impotence and an alteration of the hair distribution. One or more of these features may be absent in any case of hemochromatosis. The disease is much more common in men, being roughly 20 times more frequent than in women. It is practically unknown in patients under the age of 20 and has its highest incidence in the age group of 40 to 55.

There are excellent descriptions of hemochromatosis in the literature, and these discuss adequately what is known of the etiology, pathology and treatment of this disorder. This paper is not intended to cover those points but to report the appearance of hemochromatosis after multiple blood transfusions in a patient with aplastic anemia.

Kark² described the first case of hemochromatosis associated with multiple blood transfusions in 1937. In 1948 Schwartz and Blumenthal³ reviewed the literature of reported cases and added 5 of their own to this group, bringing the total of cases of so-called exogenous hemochromatosis to 13. At first it was considered that hemochromatosis developed in these patients merely because they had received so much iron that they were unable to utilize it and that this resulted in the deposition of abnormally large amounts of hemosiderin in various tissues, ultimately leading to the development of cirrhosis of the liver and fibrosis of the pancreas and other glandular organs. There are cases reported in which the quantitative blood given by transfusion has been too small to account for the large amounts of iron found at autopsy.

Of the 13 patients with anemia who had multiple blood transfusions and in whom hemochromatosis developed, only 2 had clinically demonstrable diabetes and only 5 had skin changes worthy of note. In the case reported here the patient had both diabetes and skin pigment changes. One of the interesting differences between exogenous hemochromatosis and the typical, or endogenous, hemochromatosis is the decided difference of the ratio of men to women. In typical or endogenous hemochromatosis, the ratio is about 20 men to 1 woman. In the series of 13 of the exogenous type cases so far reported, there were 7 men and 6 women. It is to be anticipated that more patients with hemochromatosis will be seen with all the manifestations of the disease because of the increasing utilization of whole blood transfusions and the greater longevity of patients who are producing inadequate quantities of red blood cells of their own.

Zeltmacher and Bevans⁴ reported on aplastic anemia and its association with hemochromatosis. They felt that the cause of aplastic anemia is still obscure or unknown but that it might be related to exogenous and endogenous toxins or one to the other. Such toxic elements, perhaps in association with factors of deficiency, may lead to permanent liver damage. It follows that patients with pseudoaplastic or hypoplastic anemia with a rather prolonged course may come to have retention of iron, pigmentation of the skin and cirrhosis of the liver and when the pancreas becomes involved in the process, diabetes may develop. The iron derived from destruction of intrinsic and transfused blood is not used in the formation of hemoglobin but is mechanically deposited in various organs. If the duration of the aplastic anemia is long enough, there may be large accumulations of iron, and it is felt that this lays the groundwork for the development of hemochromatosis.

REPORT OF CASE

Mrs. C. J., a 71-year-old white woman, was first seen in December 1945 by one of us (F. J. M.). At that time she was complaining of frequent, rather severe "nosebleeds" and had observed red blood in the stools. She stated that she had always had good health but in the past five years had noted some bleeding in the stools which came in episodes lasting several days with intervals of freedom between episodes of two to three months. During the previous year she had had frequent "nosebleeds," averaging about one per week, but at times she had some epistaxis every day. These seemed to occur more readily if she was physically active. She stated that for twenty or twenty-five years she had experienced episodes of pain in the upper right portion of the abdomen beneath the ribs lasting several days. This pain occasionally was rather severe but had not been associated with indigestion, nausea or vomiting. She stated that she had noted some rapid heart action on moderate exertion. Artificial menopause had been induced with radium at the age of 53 years, and she had had no vaginal spotting or bleeding since that time. She had had recurrent tonsillitis and sore throats each winter for many years in her early life. She had had typhoid at the age of 15 and was supposed to have had diphtheria and scarlet fever as a child. Her tonsils were removed when she was 42 years of age; there had been no other surgical procedures. There had been no illness similar to hers and no other hemorrhagic disease or blood dyscrasia in her family to her knowledge. There was no history of exposure to any known marrow depressant.

Physical examination showed essentially normal condition. There was no lymphadenopathy. The spleen and liver could not be palpated. On her skin she had many small ecchymoses generalized in distribution. Pelvic examination showed that the vaginal mucosa tended to bleed rather easily. Rectal examination revealed a small bleeding point inside the rectum, but no masses were felt.

The diagnosis at the time was considered to be that of one of the disorders associated with thrombopenia, probably thrombopenic purpura.

Laboratory observations made when the patient was first seen were as follows: red blood cell count, 3,500,000; hemoglobin, 9.9 Gm per hundred cubic centimeters; white blood cell count, 6,400; differential cell count, 67 per cent polymorphonuclear leukocytes, 31 per cent lymphocytes and 2 per cent monocytes; and platelet count, 90,000. The patient was given symptomatic treatment and in addition was given capsules containing 0.4 Gm of liver with stomach, 0.1 Gm of anhydrous ferrous sulfate, 0.15 mg of thiamine hydrochloride and 0.05 mg of riboflavin (Ictron® ferrous capsules) three times daily after meals.

She was seen again in January 1946, when she stated that she had passed a kidney stone on Dec. 31, 1945. She stated she had felt well since then. She had had epistaxis about three times during the preceding week and had had one rather severe episode of rectal bleeding. Her physical examination continued to show normal conditions. There were a few ecchymoses.

From the Medical Department of the Wichita Clinic, Wichita.

Dr. McEwen is a Fellow of the American College of Physicians.

1. Berk, J. E., and Lieber, M. M. Primary Carcinoma of the Liver in Hemochromatosis. *Am. J. M. Sc.* **202**: 708 (Nov.) 1941.

2. Kark, R. M., cited by Blumenthal and Schwartz.³

3. Blumenthal, S. A., and Schwartz, S. O. Exogenous Hemochromatosis Resulting from Blood Transfusions. *Blood* **3**: 617 (June) 1948.

4. Zeltmacher, K., and Bevans, M. Aplastic Anemia and Its Association with Hemochromatosis. *Arch. Int. Med.* **76**: 393 (June) 1944.

they appeared to be fading. After that time the patient was seen on numerous occasions with essentially the same symptoms.

In June 1946 the patient was seen by Dr. Sloan Wilson, of the University of Kansas Medical Center who made a diagnosis of aplastic or hypoplastic anemia of unknown cause. This diagnosis was made after a complete blood study and biopsy of the bone marrow. The sternil bone marrow was hypoplastic, and there was an increase in fat cells and cellular debris such as is seen in so called aplastic or hypoplastic anemia.

The patient received multiple transfusions of whole blood, on the average of one every two weeks until she had had a total of about 100 blood transfusions of approximately 500 cc each. The red blood cell count after the transfusions remained between 2,500,000 and 3,500,000. The leukocyte count varied from 2,500 to 6,000 per cubic millimeter.

The patient reported to Wesley Hospital June 13, 1949. About two months prior to that time she had an "upset stomach." She had no vomiting but had pain in the upper part of the abdomen especially after she took any food or medication. She had deep,aching pains in the epigastrium for about thirty minutes after meals or after medication. She had stopped taking all oral medicaments but continued to receive blood transfusions every two weeks. About two weeks before admission she felt that she could no longer take food. She attempted to maintain herself on a diet of buttermilk and toast. To her knowledge she had had no tarry bowel movements but had had some red streaked stools. Recently many new petechiae and ecchymoses had developed. There had been no vaginal bleeding, epistaxis or bleeding from the gums. Her strength was good after blood transfusions but she weakened rather rapidly after having one.

At the time of admission, she had a normal temperature and a pulse rate of 70 beats per minute. Examination of the head and neck revealed no new findings. The heart and lungs were normal. There was tenderness in the region of the gallbladder. Pelvic and rectal examinations showed normal conditions. She had many petechiae and ecchymoses generalized in distribution over her arms, legs and body. There was a generalized bronzed or icteric tint to the skin. Examination of the blood sugar during her hospitalization showed it to be 260 mg per hundred cubic centimeters.

The red blood cell count averaged between 2,500,000 and 3,000,000, the white blood cell count was as low as 1,500 at times during her hospitalization. The platelet count varied from 14,000 to 20,000. The red cell fragility in hypotonic sodium chloride showed a range of 0.42 to 0.30 per cent. The uterus index was 11 units. Gastric analysis following the Ewald test meal revealed no free acid in the first two aspirations. There were 5 degrees of free acid and 13 degrees of total acidity in the third specimen withdrawn. A roentgenogram of the abdomen revealed a large solitary gallstone. The stomach and colon were examined by means of barium contrast and were reported as normal. During this admission the bone marrow was studied by aspiration and showed the hypoplasia previously described.

The patient received several transfusions during her hospitalization. She was placed on a diet for patients with diabetes and the blood sugar was maintained at levels between 114 and 150 mg per hundred cubic centimeter with 20 units of protamine zinc insulin daily. A small segment of skin was removed from the anterior tibial region and was reported as containing the deposition of iron pigment characteristic of hemochromatosis of the skin. She was dismissed July 12, not feeling as well as usual.

The patient was readmitted on July 30. She had fared well at home for about ten days but had noted some giddiness and occasionally fell down. For the previous three to four days she had had glycosuria (4 plus), which was her main concern on admission. She had also had some abdominal cramping during a bowel movement. The red cell count on admission was 1,200,000 and the leukocyte count was 1,000 per cubic millimeter. The hemoglobin was 3.9 Gm per hundred cubic centimeters. The blood sugar was 496 mg per hundred cubic centimeters. With administration of insulin the blood sugar the following day had been brought to a level of 186 mg per

hundred cubic centimeters. She did not show symptoms of acidosis at that time. By August 2 the amount of blood sugar had gradually increased to 536 mg per hundred cubic centimeters in spite of administration of increasing amounts of insulin. She was given whole blood transfusions, but she became progressively weaker and died August 2.

An autopsy was performed by Dr. B. E. Stofer, pathologist at Wesley Hospital. Gross examination showed pigmentation of the skin, as previously described. There was no increase in the amount of fluid in the pleural or pericardial cavities. When the small intestine was opened a large amount of gross blood was found in the lumen and there was a rather pronounced hemorrhagic appearance of the mucosa of the stomach, jejunum and ileum. Microscopic study of the tissues which were sectioned revealed large amounts of iron in the skin, ovary, bladder, fallopian tube, adrenal glands, bowel mucosa, spleen, heart, kidney tubules, lung and thyroid gland. Examination of the liver revealed no cirrhosis, but there was decided fatty infiltration in both the portal spaces and the lobules. There was a massive deposit of iron pigment in the liver. Because of an unfortunate circumstance, the pancreas was not sectioned for microscopic study. The observations at autopsy revealed the massive hemosiderosis considered characteristic of hemochromatosis.

SUMMARY

A case of so called exogenous hemochromatosis is reported in a 71 year old white woman. She had received a total of approximately 100 blood transfusions of 500 cc each at the time the diagnosis of hemochromatosis was made. The diagnosis prior to the administration of the blood was that of aplastic or hypoplastic anemia of unknown cause. Bronze pigmentation as well as clinical diabetes developed. The patient died after a diffuse gastrointestinal hemorrhage. Until June 1948 there had been 13 cases of exogenous hemochromatosis resulting from multiple blood transfusions reported. With the more widespread availability of whole blood, there will probably be more of these cases observed.

AGRANULOCYTOSIS FROM TRIPLENNAMINE (PYRIBENZAMINE®) HYDROCHLORIDE

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Eau Claire, Wis.

When this report was started, to my knowledge only one reference to agranulocytosis from tripeleannamine (pyribenzamine[®]) hydrochloride had appeared in the literature.¹ At the time this report was completed, Cahán, Meilman and Jacobson had currently reported a case of agranulocytosis following tripeleannamine therapy. The following case is one of agranulocytosis after the drug had been taken three times daily for eight weeks because of urticaria. No other medications were involved.

Daily Leukocyte and Differential Count of Patient Receiving Treatment for Agranulocytosis

Day	W B C	Neutrophils	Lymphocytes	Monocytes	Eosinophils
1	1,700	6	68	26	0
2	2,400	16	62	21	1
3	4,000	28	50	22	0
4	5,200	36	51	8	1
5	5,700	43	48	8	1
6	6,500	56	40	4	0
13	9,200	62	34	3	1
21	7,000	63	26	4	2

REPORT OF A CASE

A nurse aged 39 sought medical attention because of malaise, prostration and urticaria the last mentioned of eight weeks duration. The distribution of the urticaria was general including her eyelids and lips. The patient started taking tripele-

From the Department of Internal Medicine, Midelfart Clinic.
1. Blanton, W. B. and Owens, M. L. B. Jr. Granulocytopenia Due Probably to Pyribenzamine, J. A. M. A. 134: 454-455 (May 31) 1947.
2. Cahán, A. M., Meilman, E. and Jacobson, B. M. Agranulocytosis Following Pyribenzamine. New England J. Med. 241: 865-867 1949.

namine hydrochloride, 50 mg three times daily, when the lesions first appeared. The medicament seemed to keep the urticaria fairly well controlled. However, after seven weeks she began to feel weak, and this weakness progressed to almost complete prostration. She stated that everything, "suddenly had become too much" for her. She had taken no other medicament for the past eight weeks except three tablets of the antihistaminic agent daily.

Physical examination revealed a few large blotches of giant urticaria on the patient's arms and flanks. There was no abnormality of the mucous membranes, gums or throat. The blood pressure was within normal limits, heart and lungs were normal, and abdominal, pelvic and rectal examinations revealed essentially normal conditions. The temperature was 98.4 F. The hemoglobin was 12.8 Gm per hundred cubic centimeters, the red blood cell count was 4,140,000, and the leukocytes 1,700. The differential count showed only 6 neutrophils, the remaining cells were lymphocytes and monocytes.

The patient was hospitalized, tripeleannamine therapy was stopped and 50,000 units of penicillin was administered every three hours. In the accompanying table the white blood cell count and differential count of the patient are recorded by hospital day. Two blood cell counts taken on the thirteenth and twenty-first days following the first hospital day are also recorded.

COMMENT

Since the patient had taken no other medicament for eight weeks except tripeleannamine hydrochloride, 50 mg three times a day, evidence that this medicament was the agent responsible for the agranulocytosis appears to be conclusive. The rapid response to penicillin treatment after the withdrawal of the antihistaminic drug is further evidence that the latter caused the neutropenia.

SUMMARY

To my knowledge 2 other cases of agranulocytosis due to tripeleannamine (pyribenzamine[®]) hydrochloride have been reported previously in the literature. This third case seems to be clearcut, since no other medicament except the antihistaminic drug was involved.

AGRANULOCYTOSIS AFTER ANTIHISTAMINIC THERAPY

Report of a Case Following the Prolonged Use of Tripeleannamine (Pyribenzamine[®]) Hydrochloride

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and
JOHN K. GUCK, M.D.
New York

The toxic manifestations of the antihistaminic agents are generally considered to be mild in nature. The usual symptoms are drowsiness and slight gastrointestinal and central nervous system disturbances.¹ Minor skin eruptions have been reported but are uncommon.²

The occurrence of severe reactions to the antihistaminic drugs is not sufficiently appreciated either by the medical profession, the pharmaceutical houses, the Food and Drug Administration or the laity. We therefore think it appropriate to report a serious effect, namely, agranulocytosis, following the prolonged use of an antihistaminic agent, in this case tripeleannamine (pyribenzamine[®]) hydrochloride.

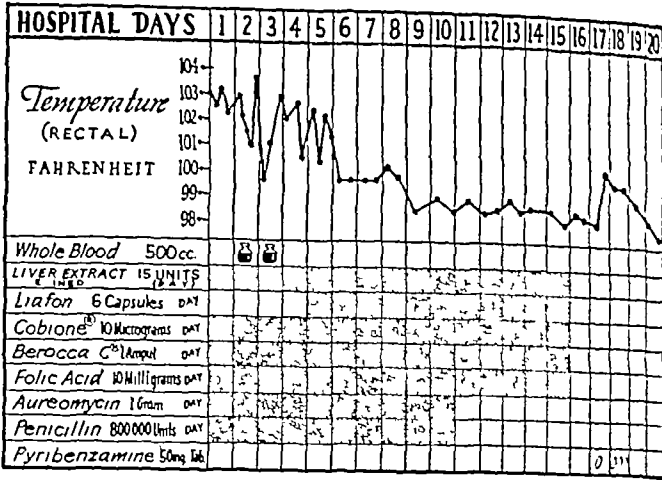
This report is timely because of the current flooding of the highly competitive drug market with innumerable antihistaminic preparations, many of which have had inadequate clinical trial. Some are being widely publicized as the conqueror of the common cold and are obtainable without prescription. Unfortunately, physicians themselves have been caught in this tide of over-

enthusiasm. Additional case reports of agranulocytosis due to antihistaminic preparations have already appeared in the literature.³

REPORT OF A CASE

A retired nurse aged 60 had symptoms of hay fever for many years, manifested in the late summer and autumn as a mild but persistent ophthalmorhinitis. Previous desensitization courses had given her little or no relief.

In August 1949, on the advice of a lay friend, she began taking tablets of tripeleannamine hydrochloride, 50 mg three times a day, with prompt relief of her slight symptoms. After the first



Temperature and treatment chart. Note rise in temperature after test dose of tripeleannamine hydrochloride.

few doses, however, she noted ill defined general malaise with headaches and transient lower abdominal cramps with mild diarrhea. Two weeks later she began to experience anorexia and severe aching in the lumbosacral region. She attributed these symptoms to chilling following a swim at the beach, however, for the next three weeks the symptoms increased insidiously, until three days before admission there developed pronounced weakness, anorexia and feverish and chilly sensations. Her temperature reached 102 F (oral). Two days later, it rose to 104 F. Her physician had found nothing in the history or physical examination to account for her condition and accordingly advised hospitalization.

She had taken tripeleannamine for a five week period until the day of hospitalization. During this time she had ingested a total of eighty-five 50 mg tablets, having slightly tapered off on the medicament in the two weeks prior to admission. Although the antihistaminic drug had promptly eliminated the hay fever symptoms and there were no subsequent respiratory complaints, she had continued taking the tablets because the pollen season still prevailed and she feared the return of her hay fever.

Careful questioning revealed that she had taken no other medicaments except two acetylsalicylic acid and acetophenetidin capsules (each capsule containing 3 grains [0.19 Gm] of the former and 2 grains [0.13 Gm] of the latter drug) on the night prior to admission and one digitalis tablet on the morning of admission because of rapid pulse. In addition, she had been in the habit of taking 1 ounce (30 cc) of liquid petrolatum twice a day for the past twenty years. Her past history was otherwise noncontributory.

On admission (Sept 30, 1949) the patient was acutely ill and extremely apprehensive because she feared that her fever and symptoms were due to some obscure and fatal disease. The temperature was 102.8 F, the pulse rate 120 and the respiratory rate 20. The blood pressure was 190 systolic and 80 diastolic.

3 Blanton W B and Owens M E B, Jr. Granulocytopenia. Probably to "Pyribenzamine." J A M A 134: 454-455 (May 31) 1947. van Loon, J A and Kanters J A C. Nederl tijdsch geneesk 93: 1070-1074 (April 2) 1949. Clement R, and Godlewski Bull et mem Soc med d hop de Paris 61: 103-105 (March 2) 1944. Cahan, A M, Meilman E and Jacobson B M. New England J Med 241: 865-867 (Dec 1) 1949.

From the second medical service at Lenox Hill Hospital, assistant adjunct physician (Dr Martland) and resident in medicine (Dr Guck).
1 Loveless M H, and Dworin, M. Bull New York Acad Med 25: 473-487 (Aug) 1949.
2 Epstein, E. Dermatitis Occurring During Therapy with Tripeleannamine Hydrochloride (Pyribenzamine Hydrochloride), J A M A 134: 782 (June 28) 1947.

Complete physical examination revealed nothing to explain her condition. There was no significantly obvious focus of infection, merely a mild injection of the nasopharynx.

Initial white blood cell counts were 1,950 and 1,300 with almost complete absence of granulocytes; the cells on smear being almost entirely lymphocytes (table). On the second hospital day an aspiration of the sternal bone marrow was performed and revealed maturation arrest of the granular cells at the myelocyte stage with an increase of lymphoid cells, an observation typical of toxic agranulocytosis. Blood studies did not reveal anemia at any time. A roentgenogram of the chest revealed essentially normal conditions. Blood and urine cultures febrile antigens (typhoid paratyphoid and brucella) and tests for heterophil antibodies shortly after admission were all negative.

The patient was given penicillin and aureomycin prophylactically. She also received transfusions of whole blood. Refined liver extract cobione⁴ (crystalline vitamin B₁₂) and berocca C⁵ (vitamin B complex and ascorbic acid) were given parenterally. Lifon⁶ and folic acid (pteroylglutamic acid) were given orally. Therapy and temperature response thereto are shown on the accompanying illustration.

On the third hospital day the white blood cell count had risen to 3,000 with lymphocytes 56 per cent polymorphonuclear cells 40 per cent, monocytes 2 per cent and eosinophils 2 per cent. By the sixth hospital day the temperature had returned to normal and the patient was asymptomatic. On the fifteenth hospital day the white blood cells had risen to 6,200 and the differential count was normal.

There was no evidence of skin or buccal lesions, lymphadenopathy or splenic or hepatic involvement at any time during her hospital stay.

On the seventeenth hospital day a 50 mg test dose of tripeleminamine hydrochloride was given orally. Shortly after the ingestion of this dose the patient began to experience again the general malaise aching in lumbosacral region weakness, headaches and lower abdominal cramps with diarrhea that appeared originally after her first few doses of the antihistaminic agent. A temperature rise to 100.6 F was also noted.

Blood Examinations in Agranulocytosis After Antihistaminic Therapy

	Hospital Day									
	1	2	5	8	11	15	17	18	19	20
Red blood cells (millions/cu. mm.)	4.5		4.8		5.1					
Hemoglobin (Gm.)	13.0		13.9		14.0					
White blood cells (cu. mm.)	1,950	1,300	3,000	3,600	4,000	6,000	6,300	6,500	5,900	
Polymorphonuclear cells	6%	8%	40%	51%	53%	53%	55%	67%	74%	
Lymphocytes	94%	90%	56%	44%	40%	41%	42%	33%	26%	
Monocytes		2%			1%	4%		2%		
Eosinophils			2%		1%					
Basophils				2%	3%	1%	1%			

On the following morning her symptoms had largely cleared and it was decided to continue the tripeleminamine dosage to see what effect there might be on the blood. Accordingly on the eighteenth hospital day she was given three 50 mg doses with a reappearance and aggravation of all her symptoms except the diarrhea. During this test period serial blood cell counts showed a progressive lowering of the total white blood cell count although leukopenia or granulocytopenia did not develop. In view of the early repetition of symptoms from the tripeleminamine we believed that further administration of the drug was an unjustifiable procedure.

SUMMARY

This case illustrates the occurrence of agranulocytosis following the prolonged use of an antihistaminic agent, in this case tripeleminamine (pyribenzamine⁴) hydrochloride. This complication, although probably rare, is of such seriousness that in our opinion prolonged antihistaminic therapy warrants periodic determination of the blood count. This is of special

⁴ Each capsule contains: exsiccated ferrous sulfate 0.132 Gm., ascorbic acid 50 mg., folic acid 1.67 mg. and desiccated liver 0.5 Gm.

importance because of the current competitive flooding of the market with innumerable antihistaminic preparations many of which have had insufficient clinical trial. Because severe reactions do occur from the use of these agents, we believe that they should be available to the public only on a physician's prescription.

101 East Eighty-Ninth Street.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article

HOWARD A. CARTER, *Secretary*

AN APPRECIATION

The Council on Physical Medicine and Rehabilitation expresses its appreciation of the services of the following consultants, who so freely gave their assistance in the work of the Council during the year 1949: Drs. Conrad Berens, Edward Bigg, Raymond Carhart, Mrs. Eva Thompson Carson, Drs. Milton B. Cole, Alfred Cowan, G. de Takats, David C. Famer, Alan R. Fernberg, Theodore Friedemann, Clarence J. Gamble, A. S. Gordon, John S. Hibben, John Huffman, I. F. Hummon, Ernest E. Irons, Mr. Richard E. Jones, Drs. Mary Karp, Louis R. Krasno, Margaret M. Kunde, Alfred Lewy, Clayton Loosli, Gordon Martin, Louis B. Newman, A. M. Olsen, Benjamin H. Orndoff, Stafford L. Osborne, Howard F. Polley, Charles E. Pope, Mr. Luther Ramer, Drs. John Reichert, Joseph Remlinger, O. H. Robertson, Steven O. Schwartz, Henry Schwerma, S. Richard Silverman and O. E. Van Alyea.

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Röntgen Rays and Radium and the Medical Aspects of Atomic Energy—Drs. W. Edward Chamberlain, Arthur C. Christie, Kenneth S. Cole, L. F. Curtiss, Edwin C. Ernst, Hymer L. Friedell, Robert R. Newell, Eugene P. Pendergrass, U. V. Portmann, Edith H. Quimby, Lauriston S. Taylor, Stafford L. Warren and J. L. Weatherwax.

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SATURDAY, JUNE 24, 1950

A M A ADVERTISING PROGRAM

The Board of Trustees and the Campaign Coordinating Committee of the American Medical Association have approved unanimously a nationwide advertising program which will include newspapers, magazines and radio. This is a new phase of the National Education Program to promote voluntary health insurance plans and to prevent politically controlled socialized medicine.

The advertising campaign will be launched in October. The total advertising budget is \$1,110,000, of which \$560,000 has been allocated to newspapers, \$300,000 to radio and \$250,000 to national magazines. Every bona fide daily and weekly newspaper, approximately 11,000, will carry copy during the week of October 8. Approximately 70 inches will be reserved in each paper. About 30 of the leading national magazines and many advertising trade publications will be included in the magazine advertising, and some 300 radio stations, covering every state, Hawaii and Alaska, will offer "spot announcements."

An announcement from the office of the A M A's National Education Campaign reads:

"The American Medical Association is embarking on a nationwide advertising program for two reasons. First, it is determined to aid in every way possible in increasing the availability of good medical care to the American people through the medium of voluntary health insurance. In that respect, the advertising copy will be designed to make the American people 'health insurance conscious' and to encourage the extension and development of prepaid medical and hospital care as a means of taking the economic shock out of illness. Second, American medicine is determined to alert the American people to the danger of socialized medicine and to the threatening trend toward state socialism in this country.

"The ad copy, in part, will be designed to sell a commodity, voluntary health insurance, but not any particular brand or plan. The individual will be encouraged to secure sound coverage in the plan which he feels best suits his individual needs. In its second aspect, the ad copy will be used to mobilize public opinion in support of a basic American ideal—the

principle of individual freedom, as opposed to the philosophy of a government-regimented economy."

Some members of the medical profession and others may look with askance at any efforts of the profession to resort to advertising. However, the projected program is not advertising in the normal sense, it is intended to permit preening in the light of self accomplishment. It is intended to forcefully convey information to everyone who should be interested in health. Briefly, the campaign is intended to relieve the medical profession of the need for a continuing exhaustive campaign and to find a way to bring the issue of government-controlled medicine to a public conclusion, to crystallize general public sentiment into concrete public certainty and to solidify the confidence of the public in the medical profession and to focus attention on what the profession has done and can do without government domination.

If physicians have confidence in their own leadership—local, state and national—and their ability to solve their problems, they can continue the spectacular job they have done in aiding medical progress and in holding back the forces which would shackle the medical profession and bring the general population to its knees before bureaucrats. From past experience physicians have shown themselves capable of approaching practically their problems. They now are faced with a need for similar understanding. With their support the new phase of the National Education Campaign will reach its objectives. And the campaign should have the support of every physician. If there are questions on the part of members, they should be forwarded to their local or state societies or to the American Medical Association for answer. These questions, if trouble some, should not be left unanswered, as there is too much at stake for the people of this nation.

ANTIHISTAMINES FOR COLDS

Several months ago the Council on Pharmacy and Chemistry analyzed the published data for the use of antihistaminic agents for colds¹. At the same time THE JOURNAL criticized some of the promotional efforts to promote these remedies as cures and as abortive and preventive measures². Evidence at that time was lacking to justify such promotional ballyhoo.

Nevertheless the Council and THE JOURNAL were roundly berated for expressing their beliefs. An editorial in *Collier's* magazine was particularly critical of these efforts to bring some sanity into the advertising claims. The editorial was so phrased that the majority of its readers would be left with the thought that the editorial writer at least believed that the criticisms of the American Medical Association were based on greed—that they had been offered in an attempt to prevent

¹ Status Report on Antihistaminic Agents in the Prophylaxis and Treatment of the Common "Cold." Report of Council on Pharmacy and Chemistry. J A M A 142:566 (Feb 25) 1950.

² Antihistamines for Colds, editorial J A M A 142:1016 (Feb 25) 1950.

persons with colds from deserting their physicians for these new pills. Such an unjustified and unfair attack seemed hardly appropriate in a magazine which, so far as we know, is not generally regarded as a source of information on medical diagnosis and treatment for physicians.

Soon after the Council's findings were published the Federal Trade Commission was announced to have issued critical statements against the type of advertising which THE JOURNAL had denounced. We hope that the Council's and THE JOURNAL's critics have seen the recent announcement in the press to the effect that five heavily advertising promoters of antihistaminics for over-the-counter sale have agreed not to advertise that their products will cure or prevent colds. These firms are alleged to have "been accused of using 'false and misleading' advertising" and in the future will sell their products only for their effect on cold symptoms—for which many preparations already have been sold for years.

INCLUSION BODIES DISEASE

Jesionek and Kiolemenoglou and Ribbert reported finding (1904) protozoan-like cells in the kidneys, lungs, liver and the parotid glands in isolated instances of stillborn infants. Goodpasture and Talbot described in 1921 similar cells in the lungs and kidneys of a child dying at 2 months of age with bronchopneumonia, traced their origin to altered tissue cells and drew attention to their resemblance to the affected cells in salivary gland disease of guinea pigs. Von Glahn and Pappenheimer reported in 1925 a case of intranuclear inclusions in the intestine, liver and lungs of a 36 year old man. Farber and Wolbach found 26 instances of inclusion bodies in 183 consecutive autopsies on infants less than ½ year of age. The inclusion bodies were confined to the salivary glands in 24 and were found in various viscera in 2.

McMillan¹ reported a case of fatal inclusion disease pneumonitis in an adult, bringing the total incidence of inclusion disease in adults reported in the literature to 9 cases. Cappell and McFarlane² observed in the tissues of 2 infants, dead from hemolytic disease of the newborn, widely distributed intranuclear and cytoplasmic inclusion bodies. The lesions were morphologically identical with those attributed to the action of salivary gland virus of rodents and other animals. The widespread lesions found in these infants, by analogy with the experimental transmission of the salivary gland virus in animals, were probably due to dissemination of a human strain of salivary gland virus. These 2 cases are the first examples of hemolytic disease of the newborn associated with inclusion bodies in which the blood groups of mother and child have been fully investigated. No blood group incompatibility was detected in them,

and attempts to demonstrate irregular antibodies in the maternal serum were unsuccessful, not only against the cells of the affected infant but also against the father's and a large panel of known cells.

Wyatt and his co-workers³ report on 6 fatal cases of inclusion disease in infants, bringing the total number of cases in the literature to 64. They believe these inclusion cells to be the primary cause of death rather than an incidental finding. The outstanding pathologic change noted in all 6 cases was the presence of the inclusion-bearing cells. There was a widespread visceral involvement in all, the most conspicuous damage being found in the kidneys, liver and lungs.

The distinctive features of the morphologic diagnosis of this disease, according to these authors, are as follows: (1) occurrence of nuclear and cytoplasmic inclusions, (2) specific cellular gigantism, with cells measuring up to 35 microns in diameter, (3) nuclear inclusions, huge, granular, acidophilic or metachromatic, usually single, never more than two in a single nucleus and surrounded by a pale halo, with prominent margination of nuclear chromatin and often two distinct marginal polar bodies, (4) cytoplasmic inclusions, numerous and frequently localized in one portion of the cell, basophilic, uniform in size (2 to 4 microns in diameter) and spherical, (5) pronounced polymorphism of affected cells and their nuclei, with inclusions following the irregular contour of the nuclei, and (6) location largely in epithelial structures, such as bronchial epithelium, liver cells, bile duct cells, renal tubular epithelium and less often in adrenal, gastrointestinal epithelium (apparently the commonest location for adults), pancreas, thyroid and parathyroid.

The occurrence of the disease in stillborn and premature infants suggests that the infection is acquired from the mother during intrauterine life. The virus probably is present in a latent form in many adults and frequently localizes in the salivary glands of infants in utero. The inclusion bodies are regarded as strongly suggestive of reaction to a virus. Nuclear inclusions have been observed in the tissues of man and animals subjected to the toxic actions of heavy metals. The resulting inclusions, however, do not resemble closely the inclusions described, particularly in the absence of characteristic basophil cytoplasmic granules. Of all the lesions associated with inclusion bodies the only ones which show cytomegaly, intranuclear and cytoplasmic changes identical with those in the organs of infants are the salivary gland virus diseases of rodents and monkeys.

In some of the lower animals similar nuclear and cytoplasmic inclusions are constantly associated with the presence of a serially transmissible virus infection which in certain circumstances has fulminating lethal powers. This virus infection in lower animals, as in human beings, is latent in salivary gland tissue, and whenever

¹ McMillan, G. C. Fatal Inclusion Disease Pneumonitis in an Adult. *Am. J. Path.* 23: 995 (Nov.) 1947.

² Cappell, D. F. and McFarlane, M. N. Inclusion Bodies (Protozoan like Cells) in the Organs of Infants. *J. Path. & Bact.* 59: 385 (July) 1947.

³ Wyatt, J. P., Saxton, J., Lee, R. S. and Pinkerton, H. Generalized Cytomegalic Inclusion Disease. *J. Pediatr.* 47: 1 (March) 1950.

the salivary glands contain the inclusions they also contain the virus, which can be transmitted serially in animals of the same species by intracranial inoculation.

Clinical diagnosis at present is probably not possible. The possibility of clinical confusion of the disease with hemolytic disease of the newborn infant is evident. Although inclusion disease may give rise to jaundice, bleeding tendencies and erythroblasts in the peripheral blood, there is no evidence that it is etiologically related to blood group incompatibility. The 2 cases of Cappell and McFarlane demonstrated that they are not necessarily etiologically related. Wyatt and co-workers suggest that studies of exfoliated cells in the urine of infants suspected of having generalized cytomegaly inclusion disease might offer a particular method of diagnosis.

These authors conclude that the causative agent of the disease is a specific virus, which, per se, is a common cause of fetal and infantile death. The morphologic and cytologic findings of the inclusion-bearing cells are pathognomonic of the disease. In uncomplicated cases death may result from viral pneumonia, viral nephrosis, viral hepatitis, viral enteritis or viral toxemia per se.

The fact that under experimental conditions the animal salivary gland viruses can give rise to generalized lesions, and that such generalization is more readily induced in the fetus than in the adult, lends support to the suggestion that the generalized lesions of infants may be due to dissemination of this virus. Despite the evidence available, there remain many unsolved problems in the relationship between the morphologic changes and the intracellular localization of the virus.

Current Comment

INAUGURATION OF THE A M A PRESIDENT IN SAN FRANCISCO TO BE BROADCAST

For the first time in the history of the American Medical Association the inauguration of the new president, which will take place on Tuesday, June 27, at the San Francisco meeting of the Association, will be broadcast. The program will be carried over two large radio networks, the Mutual Broadcasting Company and the National Broadcasting Company. The inauguration ceremony will take place at 6 p. m., Pacific Standard time, at the Palace Hotel. The House of Delegates will be in session during the half-hour broadcast, which will be heard by millions of listeners all over the country. The House will be called to order by Speaker F. F. Borzell, and there will be brief addresses by Louis H. Bauer, Chairman of the Board of Trustees, and Ernest E. Irons, the retiring President. Dr. Elmer L. Henderson, the incoming President, will deliver a twenty minute address of national significance. The program will be closed with the presentation of the annual A. M. A. Award for Distinguished Service, after the recipient has been selected by vote by the House of Delegates when it meets on Monday, June 26. Advance newspaper publicity and letters will permit

all practicing physicians in the United States to learn the time at which the program can be heard in their localities.

"M D—THE U S DOCTOR"

An unusual attraction for physicians attending the San Francisco meeting of the American Medical Association will be a premier showing of the documentary film "M D—the U S Doctor." This film will be at the Esquire Theatre, 934 Market Street, San Francisco. Produced by the well known Louis de Rochemont (March of Time, Fighting Lady, House on 92nd Street, Boomerang, Lost Boundaries), "M D—the U S Doctor" is the first of a new series known as "The Reader's Digest on the Screen." It depicts the state of the nation's health by reviewing medical progress, tracing the education required for a physician, highlighting the work and interests of the American Medical Association, revealing how research surges onward and describing the life of a rural general practitioner. This 39 minute film with 14 voices was made in close collaboration with the American Medical Association and is one of the most searching portrayals ever made of medicine. It will not be released in other theaters until the fall. While it is intended for the general population, it should be seen by all physicians. Without doubt it is one of the most engrossing documentary films ever developed in this field. The narration, the choice of scenes and other aspects reflect the care with which Louis de Rochemont prepares his work and reveals the basis for his reputation as a master in the documentation of real people and for exploring photographically the lives of professional persons. De Rochemont's latest effort should reveal convincingly to the people the remarkable medical care enjoyed by this nation and also the reasons for it.

THE BRITISH HEALTH SERVICE

Those who are watching the functioning of the British Health Service will be interested in an advertisement which appeared in the English magazine *Punch*. A recent issue contained an advertisement for the British United Provident Association which bears the caption "Which Would You Choose in the Event of Illness?—Private Treatment or General Ward?" with the text "The National Health Service ensures that everyone receives medical and, if necessary, hospital treatment in the event of illness or operation. To many people however, the necessary formalities, the waiting, and, finally, treatment in a general ward, are disconcerting both in anticipation and in practice."

The advertisement also reads, "The British United Provident Association offers an inexpensive alternative. For a moderate annual subscription, graded to suit individual means and requirements, members can make their own arrangements for speedy and private treatment in nursing home or hospital paybed and the whole or major portion of the expenditure is refunded by B. U. P. A." Apparently there is sufficient—and we hope increasing—interest in encouraging private enterprise to provide a service superior to that which a government can offer for health service.

WASHINGTON NEWS

Congressional Hearings

Congressional consideration of Reorganization Plan 27, which would make the Federal Security Agency into a Department of Health, Education and Security, got an unexpected early start. The House Expenditures Committee, acting before the Senate Committee on June 14 announced it would start hearings on plan 27 and several other reorganization plans the next day.

However, because no witnesses could be obtained on such short notice, consideration of plan 27 was postponed to June 19, when the testimony of witnesses would be put into the record. To a large extent arguments are a repetition of last year's hearings on plan no. 1.

Unless either House rejects plan 27 by July 31, it will automatically become effective.

When he submitted plan 27, President Truman stated "A principal criticism of the 1949 plan was that in centralizing all statutory authority in the secretary the plan threatened in matters of health and education unduly to subordinate professional judgment to nonprofessional domination. The present plan is not open to this criticism. In an attempt to answer this criticism in the present plan Mr. Truman would move over into the new department the statutory authority of the Surgeon General, as well as that of the Commissioner of Education. However, an examination of the plan shows the way is still left open for 'nonprofessional domination' in health matters.

Specifically there is no requirement that any top executive of the proposed department be a doctor of medicine. No qualifications whatever are required of the Secretary of the new department, who would be a political appointee. Under him, the chief executive for medical services would be the Surgeon General, who need not be a doctor of medicine. Reorganization Plan 27 merely states that the Surgeon General must have 'professional qualifications, training and experience appropriate to the duties of his office.' This wording would permit nomination of any other person in the health service fields who was regarded by the President as possessing appropriate 'professional qualifications, training and experience.' In such an event if the Senate did not reject the nomination the medical profession would be left without representation in the new department's policy making. Such a situation is distinctly possible under plan 27. Also the proposal this year drops the requirement that the Surgeon General must come from the commissioned ranks of Public Health Service.

Senator Herbert O'Connor, Maryland Democrat and member of the Expenditures Committee, which considers reorganization plans, announced his opposition. Senator O'Connor based his objections mostly on the fact that plan 27 does not carry out recommendations of the Hoover Commission on reorganization. "I vigorously opposed a similar plan last year," the Senator's statement said, "because I was convinced the all important activities in the field of health and education should not be placed under a political appointee, who more than likely would be not too well versed in either field. Particularly was I fearful that the creation of such a department would be the opening wedge in the handling of health affairs which would lead eventually to socialized medicine in one form or another."

Senator O'Connor also fears that the changes proposed in health administration might not be in the public interest, and he sees no justification on the basis of efficiency or economy.

For two days prior to taking up plan 27, the House Expenditures Committee held hearings on H. R. 5182, which would nullify much that plan 27 seeks to accomplish. H. R. 5182 proposes a United Medical Administration, grouping in one organization virtually all federal health and hospital activities—military, Veterans Administration and Public Health.

The Committee heard three witnesses, all opposed to the bill, and received two statements, one in opposition and one (from the comptroller general) which made no recommendation.

Spokesmen for Veterans Administration and the Veterans of

Foreign Wars traced in detail the history of veterans care, starting prior to World War I. They pointed out that creation of a joint medical administration would undo all the good accomplished when all veterans affairs originally were brought together under VA. VA Administrator Carl R. Gray Jr. declared "The proposal runs counter to the historic policy of our government to treat its veterans as a class deserving of special consideration, through one agency charged with the responsibility, to the extent possible, of administering all of their various benefit programs."

Gen. Gray and Col. George E. Ijams, VFW representative, both emphasized that under H. R. 5182 VA still would be required to authorize medical benefits but that the veterans would have to go to another agency—United Medical Administration—for treatment.

Dr. Eli Ginzberg of Columbia University, frequent adviser to the government on health and hospitals, argued that military medicine would suffer if grouped with the other medical services. In defense of the military, he said wartime medical procurement practices were justified.

Marvin L. Goldberger told the Committee that AMVETS preferred an interagency commission (military, VA and PHS) with authority to allocate hospital sites and beds, establish minimum medical and hospital standards and handle intern and resident programs. In other respects the commission's role would be advisory.

Voluntary health insurance plans—particularly new and small ones—have certain unavoidable shortcomings. They must, to some extent, eliminate or limit coverage in cases of certain chronic and costly illnesses, such as mental disease, cancer and tuberculosis. To correct the situation, Representative Charles A. Wolverton (Republican, New Jersey) has introduced a bill for reinsuring voluntary, nonprofit plans against the high costs of catastrophic illness. The objective is to make it possible for these plans to write unlimited coverage policies. Briefly, these are the provisions. Insured plans would recover from a federal corporation two thirds of all payments in excess of \$1,000 per year to any one subscriber. A subscriber would be required to pay \$1 a day toward his hospital bill and to pay for all office calls in excess of 12 per year. A fee schedule would be worked out, but the physicians could charge up to 25 per cent in excess of the schedule. The federal corporation would collect 2 per cent of the gross premium payments received by an insured association which would be matched by direct congressional appropriation. The system would be started by a direct appropriation of \$50,000,000 and Congress annually would appropriate money for administrative costs unless the corporation showed enough profit to cover them. On the positive side Mr. Wolverton's plan represents the collective thought of a group of persons who have been concerned with the problems of health insurance, including Harold Stassen. On the negative side, his bill is not a cure all. For example, it carefully excludes commercial companies, which would greatly limit its scope. Also, it does nothing to protect insured associations against financial difficulties not the result of catastrophic illnesses.

Opposition to Truman's Reorganization Plan

The Citizens Committee for the Hoover Report, a private, nonprofit group dedicated to work for better national government, is the first large organization officially to announce its opposition to President Truman's Reorganization Plan No. 27.

One week after Mr. Truman sent this plan to Congress the Hoover Committee released an analysis of the proposal which said the plan ran counter to Hoover recommendations "in several major respects."

Reorganization Plan No. 27 would make the Federal Security Agency into a cabinet rank Department of Health, Education and Security presided over by a secretary under whom would serve a surgeon general and commissioners of education and security. At hearings last year the American Medical Association opposed a similar plan (no. 1), which the Senate defeated. A. M. A. witnesses pointed out that the American Medical

Association for more than 50 years has advocated an independent department of health

In its analysis, the Hoover Committee says "this plan provides for continuation of medical activities in the new department. This is counter to the Hoover Commission recommendations for creation of a united medical administration independent of any department. Recommendation no 1 of the Hoover Report on Medical Activities states 'To accomplish these purposes (reorganization of federal medical activities) the Commission recommends the establishment of a United Medical Administration into which would be consolidated most of the large scale activities of the federal government in the fields of medical care, medical research and public health (in which we include preventive medicine)'" The committee endorses the idea of making FSA into a department but reiterates its opposition to inclusion of health activities with education and security

In submitting plan no 27 to Congress, Mr Truman made one change in the health structure, in deference to opposition raised last year. He specified that statutory authority of the surgeon general and the commissioner of education would be transferred into the new department, giving these officials a somewhat autonomous position

While this modification might win some support elsewhere, it only served to stir up more opposition from the Hoover Committee. On this point the committee declares

"The plan diverges sharply from the Hoover Commission principle that responsible and accountable administration requires vesting statutory authority in the department head. It accepts the theory of the Taft-Fulbright Bill with its provisions for autonomous bureaus. Under plan 27 the surgeon general (the Public Health Service) and the commissioner of education (Office of Education) retain all statutory authority and duties now vested in them. In other words, the new department would be a 'holding company' type of department

"This method of administrative management is counter to the principle of organization set down as recommendation no 14 in the Hoover Report on General Management of the Executive Branch"

The committee also objected because plan 27 does not include the Bureau of Indian Affairs in the new department and because it does not properly locate drug and food regulatory functions of the federal government

After reserving his decision for a week, the Republican leader, Senator Robert A Taft of Ohio, announced he was opposed to plan 27 and gave his reasons. "The difficulty is that Health, Education and Security are all different subjects," he said. "On the local level in cities they are entirely separate departments. The only respect in which they are grouped together in the present Federal Security Agency is that they all are matters in which the federal interest is secondary and the matter of principal interest is aid to states"

The Senator recalls that a similar plan was turned down by Congress last year because it did not conform to the Hoover recommendations, which call for an entirely separate medical administration. "That's been the great issue," Senator Taft says. "The welfare people, like Oscar Ewing, want to run health as a kind of welfare service. The doctors and others feel that medical care and health is a subject which ought to be dealt with by people expert in the health field and not subject to welfare direction." This situation has not been changed in the new plan, and he concludes that the difficulty with the plan is the same as the difficulty with the plan last year. Senator Taft also notes that the secretary and his two top assistants are likely to be welfare people and that it "isn't perfectly clear that all the health functions have to be assigned to the Surgeon General of the Public Health"

The Republican leader believes the plan will be defeated, because of the aforementioned objections and because it would likely make a cabinet secretary of Mr Ewing, about whom "there is a good deal of resentment in Congress"

In an attempt to sound out congressional sentiment in advance, the Administration contacted a number of senators before sending plan 27 to Capitol Hill. As part of this effort, Mr Ewing talked over the idea with Senator Taft. To date it is not known whether the Administration was more successful with others than with Senator Taft

Final action on H R 5940, providing federal assistance to medical and other health service schools, still is in doubt. Currently the full House Interstate and Foreign Commerce Committee is holding closed hearings on this bill, which was passed by the Senate, reported out once by this committee but subsequently drastically amended by the House Health Subcommittee. The full committee has been studying a recently drafted report on the problems of medical schools, prepared by Public Health Service and its advisory committees. However, if the committee acts this session it will have to do so without benefit of another survey in the same field being conducted by the A M A and Association of American Medical College. The committee has been informed that some information of this survey will be available in the near future, but probably not before Congress adjourns

H R 6000

Two developments are worth watching during Senate debate on H R 6000, which would extend social security coverage and benefits. A small group of senators, led by Scott Lucas (Democrat, Illinois) and Francis J Myers (Democrat Pennsylvania), are pledged to do all they can to get replaced in the bill a section on permanent and total disability, which was dropped out by the Senate Finance Committee but is included in the bill as passed by the House. Their efforts will be energetically supported by organized labor and a number of other groups. A M A does not oppose the bill but opposes the permanent and total disability section. Its witnesses told the Senate committee that establishing total and permanent disability insurance would impose a difficult relationship between doctor and patient and that the benefits would tend to encourage malingering among patients, with unfortunate effects on recovery and rehabilitation

In the other direction, a small bloc, led by Senator Harry Cain (Republican, Washington) hopes to defeat the entire bill. Senator Cain wants action deferred this session, pending a comprehensive study of the entire social security system. He has proposed (S Con Res 92) the appointment of a 16 member Social Security Commission to review the social security problem and recommend new policies. In a speech on the Senate floor, Senator Cain also called for an investigation of personnel in charge of social security activities

The Townsend Plan

Sponsors of the Townsend Plan for old age pensions are taking new heart for two reasons. Some members of the Senate Finance Committee showed unexpected interest in the plan while considering the social security extension bill (H R 6000), and only 21 more signatures are needed on a petition to force a House vote on the Townsend idea. Townsend sponsors drew encouragement when some Committee members said they were interested in a pay-as-you-go social security system, with age the only determining factor for eligibility. There are some basic similarities between such a system and the Townsend plan, under which all persons over 60 would receive pensions, estimated at about \$150. The Townsend sponsors' success with the House petition may be more apparent than real. Townsend bills have been before Congress since 1935. Each session a House petition is started, each time the names build up slowly, under political pressure, each time the last few names are difficult to round up, and if the total is too close some members quietly withdraw their names from the list. Only once has the House voted on the Townsend plan, in 1939, when it was defeated by 101 votes to 4

Venereal Disease Case Load

Because its venereal disease case load has proved to be considerably less than anticipated, the Public Health Service is asking Congress to transfer \$347,000 earmarked for this work. Various other projects are splitting up the sum, under a deficiency appropriations bill. In all, PHS is transferring \$469,000. The bill also asks an additional \$871,500, all to cover pay increases voted last year but not provided for in the original appropriation

ORGANIZATION SECTION

Official Notes

Abstract of Minutes of Meeting of Board of Trustees
Held May 28, 1950

The Board of Trustees met with the Coordinating Committee on Sunday, May 28 and, after approving for referral to the Board of Trustees a statement of policy submitted by Whitaker and Baxter, it took up matters which have been awaiting its attention.

All members of the Board except Dr McCormick who was attending the meeting of the World Health Organization in Geneva, Switzerland, were present.

APPOINTMENTS

Dr Walter J Zeiter of Cleveland was elected to fill the unexpired term of Dr John S Coulter (deceased) on the Council on Physical Medicine and Rehabilitation.

Dr Austin Smith succeeds Dr R L Sennich as representative of the American Medical Association to the Division of Medical Sciences of the National Research Council for a three year period.

Dr L W Larson was appointed representative of the American Medical Association and Dr H P Ramsey alternate on the Technical Advisory Committee on Blood of the National Security Resources Board.

The following appointments were made to the World Medical Association: Drs E E Irons and F F Borzell delegates, Drs H B Mulholland and T A McGoldrick alternates, Drs G F Lull and William F Braasch, observers.

EXHIBITS

Invitations were accepted to place exhibits at the meetings of the North Carolina Medical Society and the American Hospital Association, September 18-21.

1951 CLINICAL SESSION

Houston, Texas, was selected as the place of the 1951 Clinical Session of the Association, and the date set was December 4-7.

PUBLIC RELATIONS CONFERENCE

November 26 and 27 were selected as the dates for the Public Relations Conference to be held in Denver.

GIFT OF MEDICOLEGAL BOOKS

A gift of books from the medicolegal library of Dr W C Woodward, formerly Director of the Bureau of Legal Medicine and Legislation, was acknowledged to his daughter, Miss Elinor Woodward.

BROCHURE ON MEDICAL EXAMINER'S SYSTEM

The Board agreed to act as co sponsor with the National Municipal League of New York and the American Bar Association in the publication of a brochure on the medical examiner's system.

MICROFILMING OF ARCHIVES OF INTERNAL MEDICINE

The Board acquiesced in the request of UNESCO that permission be given to University Microfilms to microfilm volumes of the *Archives of Internal Medicine* from 1939 to 1945 for sale to foreign countries.

INDOCTRINATION COURSE FOR EXECUTIVE PERSONNEL
FOR COUNTY AND STATE

The Secretary and General Manager was authorized to arrange for a course to be given in the headquarters office for the indoctrination of newly designated executive personnel of county and state societies.

EMPLOYMENT OF FIELD SECRETARY FOR COMMITTEE
ON RURAL HEALTH

The employment of Mr Aubrey Gates as field secretary of the Committee on Rural Health for a period of fifteen months was approved by the Board.

NATIONAL ASSOCIATION OF LIFE UNDERWRITERS INVITED
TO SEND REPRESENTATIVES TO SAN FRANCISCO
MEETING

The Board voted to extend an invitation to the National Association of Life Underwriters to send one or more representatives to the Annual Session of the Association in San Francisco.

NEW COMMITTEE ON MEDICOLEGAL PROBLEMS

The Committee to Study the Problems of Motor Vehicle Accidents and the Committee to Survey the Relationship of Medicine and Law, both of which have been dormant for some time, were discharged by action of the Board at this meeting, and a new committee, to be known as the Committee on Medico-legal Problems, was established. It will be composed of Dr Alan Moritz Cleveland, Chairman, Mr J W Holloway Jr, Chicago Secretary, Dr Louis Regan, Los Angeles, and Dr Herman A Heise Milwaukee. A fifth member undoubtedly will be appointed at a later date.

Coming Medical Meetings

American Medical Association San Francisco June 26-30 Dr George F Lull 535 North Dearborn St Chicago 10 Secretary

American Proctologic Society Los Angeles July 15 Dr W Wendell Green 1838 Parkwood Ave Toledo 2 Ohio Secretary
Montana State Medical Association Bozeman Gallatin County High School July 9-12 Dr Herbert T Caraway 115 N 28th St Billings Secretary

West Virginia State Medical Association White Sulphur Springs The Greenbrier July 27-29 Mr Charles Lively P O Box 1031 Charleston 24 Executive Secretary

International Meetings

International Anatomical Congress Oxford England July 25-28 Secretary Miss A M Maynall Department of Human Anatomy University Museum Oxford England

International Association for the Prevention of Blindness London England July 17-21 Prof P Baillart 47 rue de Bellechasse Paris France Chairman

International Cancer Research Congress Paris France July 17-22 Secretary 6 Ave Marceau Paris 8 France

International College of Surgeons Buenos Aires Argentina August 7-12 Dr Max Thorek 1516 Lake Shore Drive Chicago Secretary

International Congress of Microbiology Rio de Janeiro Brazil August 17-24 Dr Olimpio de Fonseca Institut Oswaldo Cruz Rio de Janeiro Secretary

International Congress of Ophthalmology London England, July 17-21 Mr Keith Lyle 45 Lincoln's Inn Fields London WC2 England Secretary

International Congress of Radiology London England July 24-28 Dr J W McLaren 45 Lincoln's Inn Fields London WC2 Secretary General

International Pediatric Congress Zurich Switzerland July 24-28 Dr L Emmet Holt Jr 477 First Ave New York City 16 Secretary General

International Society of Haematology Copenhagen Denmark August 15-18 Dr Martin Hynes Cambridge University England Secretary

International Society for the History of Medicine Amsterdam Holland August 14-20 Professor 58 Blvd de la Croix Rousse Lyon France, Secretary

International Union Against Venereal Diseases Zurich Switzerland July 29-Aug 2 Dr A Cavaillon, Institut A Fournier 25 Blvd St Jacques Paris 14cm. France Secretary

State Legislation

Michigan

Bills Introduced—S Res 18 X proposes the appointment of a committee to conduct a study of the availability of medical care and hospital services in the state of Michigan and make a comparison of the results of this study with similar studies made in other states and to investigate other similar problems. S Con Res 14 X proposes the appointment of a committee to study the mental health program of the state of Michigan so as to have intelligent planning before the expenditure of the dollars of the taxpayers in the construction of new mental institutions.

Bill enacted—S Con Res 18 X was adopted May 19. It provides for the appointment of a committee to study the question of the establishment of an equitable basis for state payment to hospitals for services rendered to crippled and afflicted children.

New Jersey

Bill enacted—A J Res 1 has become Joint Resolution Chapter 4 of the Laws of 1950. It provides for the creation of a New Jersey Medical College Commission to study the need for a medical college in New Jersey.

GOVERNMENT SERVICES

Army

Hepatic and Metabolic Center

The Army Hepatic and Metabolic Center, which carries on research against infectious hepatitis, was transferred from Valley Forge General Hospital, Phoenixville, Pa., to Walter Reed General Hospital, Washington, D. C., June 15. The function of the center is to gain information in the recognition and treatment of infectious hepatitis and research in the study of the liver. Hepatitis involved an estimated 55,000 military personnel in all theaters during World War II. Research director of the center is Dr. Victor M. Sborov, instructor in medicine at the University of Pennsylvania, research associate in medicine for the Jefferson Medical College, Philadelphia, and a member of the Association for the Study of Liver Diseases. First Lieut. Donald A. Sutherland, Army Medical Corps, is assistant clinical director.

The center was recently approved for training by the American Board of Internal Medicine, thus far, two physicians from the University of Pennsylvania and one from the Jefferson Medical College have been selected for training at the unit. A complementary unit exists at the 98th General Hospital in Munich, Germany, here acute cases of hepatitis and liver dysfunction, as well as field problems of epidemiology and the evaluation of new preventive and curative drugs, are studied.

Consultants Go to Europe

Dr. Richard S. Farr, professor of orthopedic surgery at Syracuse University School of Medicine, and Dr. S. Leon Israel, assistant professor of obstetrics and gynecology at the University of Pennsylvania Graduate School of Medicine, will go to Europe on June 28 as Army Medical Department consultants to spend 30 days advising and consulting with Army surgeons in the European command.

Test New Vaccine Against Scrub Typhus

An iced vacuum jug containing 20 cc. of a new type of scrub typhus vaccine has been sent to Kuala Lumpur, Malaya, for testing by an Army Medical Department team. Tests will be carried on to determine the effectiveness of the vaccine against typhoid as well as scrub typhus. The investigations are to be conducted at the site of the Army's first successful application of chloramphenicol (chloromycetin®). Studies are being made also to determine an optimum dosage and time schedule for the administration of synthetic chloramphenicol. Army personnel working on the Malayan field test include Major Robert Traub (MSC) of Alexandria, Va., Capt. Herbert Lev, Jr. (MC) of Silver Spring, Md., Capt. Lyman P. Frick (MSC) of Takoma Park, Md., First Lieut. Fred Diercks (MSC) of Chevy Chase, Md., and First Lieut. Vernon Tipton (MSC) of Mea, Ariz. Dr. Joseph Smadel, director of the Virus and Rickettsial Department, Army Medical Department Research and Graduate School, led the team which conducted the original testing of chloramphenicol in 1948.

Selection of Site for Research Laboratory

The chairman of the Research and Development Board, William Webster, announced May 19 the election of Blake Van Leer, president of the Georgia Institute of Technology, as chairman of the ad hoc advisory committee for the selection of a site for an \$11,000,000 Army Quartermaster research laboratory. The Secretary of Defense, Louis Johnson, who was authorized by Public Law no. 424, 81st Congress, to acquire land and construct buildings for the laboratory, will select the site on the basis of recommendations from the Research and Development Board. The laboratory will be used for research and development in the field of chemicals and plastics, environmental protection of man, physics, biology and chemistry, textiles, clothing and footwear, and mechanical products.

Navy

Course in Aviation Medicine for Reserve Officers

A course of instruction in aviation medicine for inactive reserve medical officers holding the designation of flight surgeon or aviation medical examiner will be conducted at the Naval School of Aviation Medicine, Pensacola, Fla., July 10-22. Only the 1st, 3rd, 4th, 5th, 6th, 8th, 9th naval districts, Potomac River Naval Command, and Chief Naval Air Reserve training have been assigned a limited quota for this course. Inactive volunteer reserve medical officers with the designation of flight surgeon or aviation medical examiner residing in the aforementioned naval districts, who desire to attend should submit their request for training duty to the commandant of their local naval district at the earliest possible date. Meals and sleeping quarters will be available at the Bachelor Officers Quarters for those who desire such accommodations. It is anticipated that two additional courses in aviation medicine will be given at a later date.

Graduate Training

The following medical officers have been nominated for instruction under the Navy's Graduate Training Program:

Comdr. De Sales G. Du Vignerud, to instruction in children's orthopedics, St. Charles Hospital, New York.
Lieut. Alan Raftery, to instruction in pathology, Armed Forces Institute of Pathology, Washington, D. C.
Lieut. John E. Deming, to a residency in obstetrics and gynecology, Tripler General Hospital, Oahu, Territory of Hawaii.
Lieut. (jg) John C. W. Campbell, to a residency in pediatrics, Naval Hospital, Philadelphia.
Lieut. (jg) Hal T. Hurn, to instruction in psychiatry, St. Elizabeth's Hospital, Washington, D. C.
Lieut. (jg) Edward M. Smith, Jr., to a residency in obstetrics and gynecology, Naval Hospital, St. Albans, N. Y.

Navy Orders 17 Women Doctors to Active Duty

The first 17 women doctors to complete their medical internships under the Navy civilian intern training program have received orders to report this month to naval hospitals and dispensaries in the United States for 24 months of active duty. The 17 women, who are now completing their internships at civilian hospitals, hold commissions as lieutenants (junior grade) in the Medical Corps, U. S. Naval Reserve. They will join two regular Navy and three Naval Reserve women doctors now on active duty.

The new Navy women doctors are:

Ruth M. Allen of Norfolk, Va.	Margaret L. McGrath of Craft, Pa.
Helen W. Anderson, of Philadelphia	Virginia M. Norrell of Wheaton Ill.
Eleanor E. J. Bundy, of Decatur, Ga.	Sara J. Parks, of State College, Pa.
Barbara J. Call of Salem, Mass.	Patricia L. Peir, of Salinas, Calif.
Anna E. Connell, of Lubbock, Texas	Shirley J. Peterson of Park Ridge, Ill.
Julia M. Cullen of Buffalo	Ruth L. Stout of East St. Louis, Ill.
Margrethe D. Johnson of Portland, Ore.	Mildred V. Tuggle of Atlanta, Ga.
Betty J. Kizer of Fairmount, Ill.	Irene M. Vrabel of Fair Lawn, N. J.
Elizabeth L. McGee, of Media, Pa.	

Personal

Lieut. Comdr. Harry L. Day (MC, USNR), of New Haven, Conn., is being recalled to active duty at his own request and will be assigned to the Naval Hospital, St. Albans, L. I., New York.

Lieut. Joseph S. Burkle, in a residency in internal medicine, Naval Hospital, and Lieut. William R. Walsh, on duty at the Naval Hospital, St. Albans, L. I., New York, have elected to transfer from an active reserve status to the Medical Corps of the regular Navy.

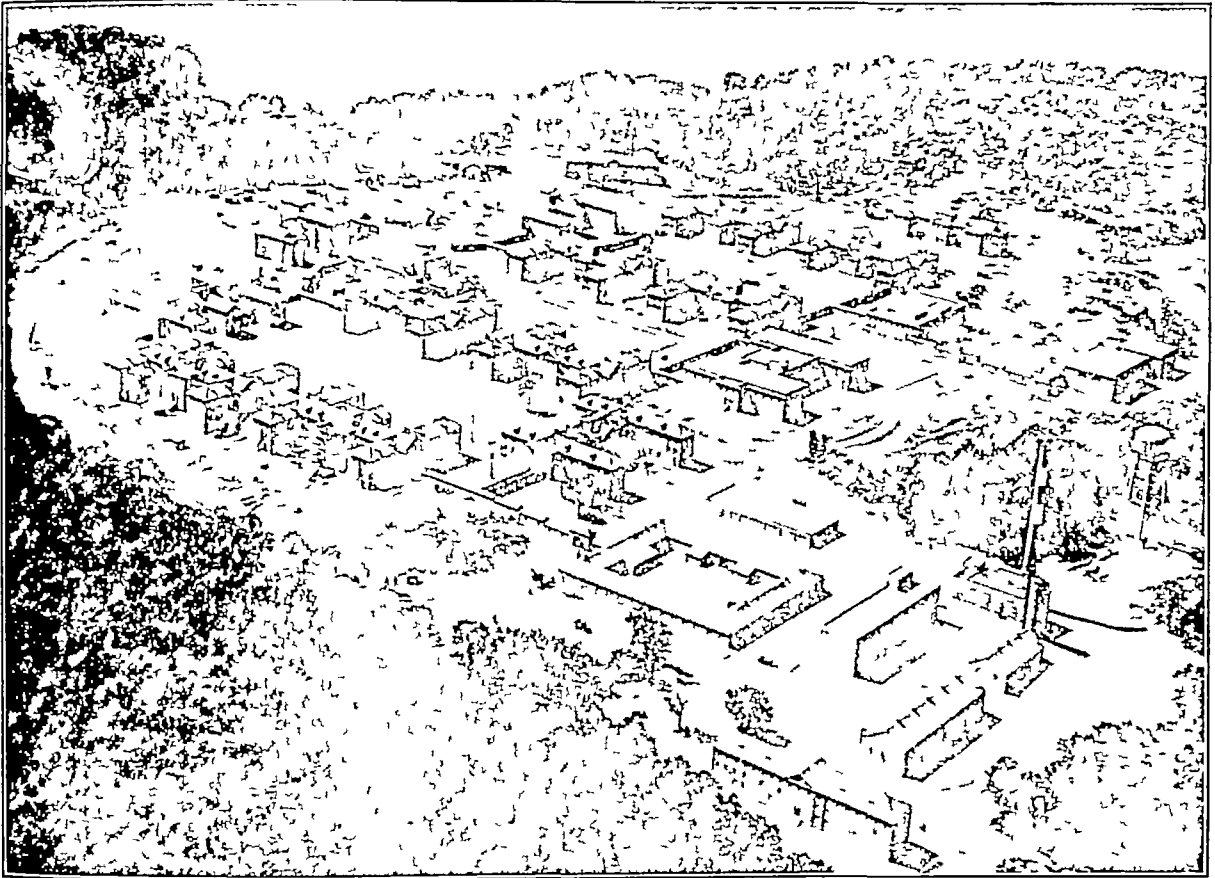
Veterans Administration

Dedicate Roosevelt Hospital for Mental Patients

The Franklin Delano Roosevelt Hospital at Crugers, N. Y., built by the Veterans Administration at a cost of \$25,000,000 for the treatment of mentally ill veterans was dedicated May 21. Thousands of persons attended the ceremonies and toured the buildings and grounds of this new 383-acre institution which is scheduled for completion this fall. At the time the hospital was dedicated 175 veteran patients had been transferred to this hospital from other veteran hospitals and 11 doctors and 40 registered nurses were on duty as part of the staff. Neuropsychiatric veteran patients will be admitted only from parts of New York, Connecticut, New Jersey and Pennsyl-

Meeting of "Grass Root" Representatives

Representatives of 38 national organizations that aid the Veterans Administration program on the voluntary basis met in Washington, D. C., May 25-26. 'Grass root' representatives will attend the meeting for the first time since this voluntary service was organized after World War II. This the tenth meeting of the group, will be held in the Departmental Auditorium on Constitution Avenue between 12th and 14th streets, N. W. The men who will address the meeting will be Carl R. Gray Jr., Administrator of Veterans Affairs; Dr. Arden Freer, deputy chief medical director; and Dr. Roy A. Wolford, assistant chief medical director for professional ser-



Franklin Delano Roosevelt Veterans Administration Hospital

vania. The capacity of the hospital will be 1,965 patients. Among the 36 buildings are two for cases of acute illness and one for cases of semiacute illness; five for continued treatment; one for women patients; the main clinic; occupational therapy building; gymnasium with swimming pool; recreation hall; theater; chapel; and utilities building. Dr. Richard B. Harris, who presided at the dedication ceremonies, is the manager; and Dr. Arnold A. Shillinger is chief of professional services. The principal speaker was Major Gen. Carl R. Gray Jr., administrator of veterans affairs.

The subject of the conference will be "Veterans Administration Voluntary Service Plan in Operation." These community leaders and VA hospital staff members will evaluate the volunteer work of the program.

Personal

Dr. Ernest V. Edwards, a veteran of both World Wars and formerly in private practice at Mayfield, Ky., will become manager of the VA hospital at Long Beach, Calif., when the VA takes over the hospital from the Navy.

Miscellaneous

Training in First Aid by Bureau of Mines

More than 1,700,000 workers in the mineral and allied industries have received first-aid training from the Bureau of Mines, U. S. Department of the Interior, in the 39 years since the Bureau was organized. James Boyd, director, said May 12

This training, he added, represents only one phase of the many-sided program of investigation and research, education and training (and since 1941) coal mine inspections through which the Bureau has carried out its mandate to promote safety and health in the mineral industries since 1910.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

Rabies Control Program—The State Board of Health has tightened regulations on bringing unvaccinated dogs into the state to prevent a recurrence of the importation of rabies. The regulation states that "All dogs imported into the State of Colorado by any method and for any purpose whatsoever shall be accompanied by an official health certificate issued by a veterinarian approved by the state of origin. Such certificate shall state that the dog is in good health and free from contagious, infectious or communicable disease also that such dog has been immunized against rabies not less than thirty days, nor more than twelve months, prior to the date of entry into Colorado, and within the past twelve months the disease rabies has not existed within the fifty-mile radius of the point of origin." A permanent control program requires that there be constant control of stray dogs and immunization of owned dogs. To aid communities in effecting such a program, Martin D. Baum, D.V.M., Denver, director of public health veterinary services, is drafting a model ordinance requiring a continuing immunization program. This will be sent to every city council in Colorado. Attention was drawn to the rabies in the four county areas comprising Metropolitan Denver in which 55 cases were reported from January 1 to March 18 (THE JOURNAL, April 22, page 1303).

CONNECTICUT

Dr. Winternitz to Retire—Dr. Milton C. Winternitz, professor of pathology and formerly dean of the Yale School of Medicine, New Haven, will retire on June 30 after 33 years of teaching on the Yale faculty. He will continue as director of the Board of Scientific Advisors of the Jane Coffin Childs Memorial Fund for Medical Research, with offices in the Sterling Hall of Medicine. During the 15 years that he served as dean he directed the rebuilding and the expansion of the Yale School of Medicine, liberalized the curriculum and revitalized research. Dr. Winternitz received his M.D. degree from Johns Hopkins University in 1907, where he served as a fellow, assistant, instructor and associate professor of pathology. He was also pathologist of the Baltimore City Hospital. In 1925 he was named Anthony N. Brady professor of pathology. Commissioned as a captain in the medical reserve corps in 1918, Dr. Winternitz was placed in charge of the subcommittee on medicine and related problems, Research Council of the Chemical Corps Advisory Board at the Army Medical Center, Edgewood, Maine. He was discharged with the rank of major. He was appointed dean at Yale in 1920.

ILLINOIS

Teaching Awards—Fourth year students in the University of Illinois College of Medicine have presented Drs. Carroll L. Birch and Francis L. Lederer with the Raymond B. Allen instructorship awards for the 1949-1950 school year. The awards, designed to honor excellency in individual instructorship rendered by faculty members to students, were given to Dr. Birch for preceptive instruction and to Dr. Lederer for clinical teaching. Dr. Birch also received the award presented by the second year students. Third year students presented their awards to Dr. Philip Thorek for preceptive instruction and to Dr. Louis Feldman for clinical instruction. Otto A. Bessey, Ph.D., received the award from first year students. Each of the winners received a key in the form of a golden apple. Their names will be placed on the permanent plaque which hangs in the Chicago Illini Union. The awards were presented by the Student Council of the College of Medicine.

Chicago

Personals—Dr. Vincent J. O'Connor, head, department of urology, Northwestern University Medical School, will be the guest speaker at the annual meeting of the Australasian Urological Society in Brisbane, Australia, July 22-26. Dr. O'Connor will also address the College of Surgeons in Sydney and in Melbourne. Dr. Arnold D. Tuttle, (MC, USA, retired) received the annual Alumni Honor Award and gold key of the School of Medicine of the University of Maryland on June 9. Dr. Tuttle, medical director of the United Air Lines, was cited for his contributions to aviation medicine.

Dedicate Goldblatt Hospital for Cancer Research—The Nathan Goldblatt Memorial Hospital of the University of Chicago was dedicated June 15. The \$2,200,000 hospital was initiated in 1946 with a million dollar gift from the Goldblatt Brothers Foundation. Chancellor Robert M. Hutchins, President Ernest Cadman Colwell and investigators in the field of cancer from the university and other research centers spoke at the dedication ceremony. Dr. Clarence Cook Little, director of Jackson Memorial Laboratories, Bar Harbor, Maine, guest speaker at a luncheon at the Quadrangle Club spoke on "Insuring the Future of Cancer Research"; other speakers were Dr. Charles B. Huggins, professor of urology, and Maurice Goldblatt, president of the University of Chicago Cancer Research Foundation. Among those on the dedication program were Dr. Leonard A. Scheele, surgeon general, United States Public Health Service, Dr. Lowell T. Coggeshall, dean of the division of biologic sciences, and Maurice Goldblatt. Speakers on the scientific panel were:

William U. Gardner, Ph.D., New Haven, Conn. Hormonal Imbalance and Experimental Tumorigenesis

Linus C. Pauling, D.Sc., San Francisco. Molecules—Our Friends and Enemies

Choh H. Li, Ph.D., Berkeley, Calif. Hormones of the Adrenal Cortex

The Nathan Goldblatt Memorial Hospital will be headquarters of the program of investigation of cancer. A \$650,000 grant from the U.S. Public Health Service and public contributions completed the balance of the construction costs. The center is reported to be the only university hospital in the world with a clinical staff working full time on investigation, teaching and care of patients within the hospital and outpatient departments. Scientists from 13 departments and the atomic institutes cooperate in the work of the hospital.

MARYLAND

State Medical Election—Officers for the coming year for the Medical and Surgical Faculty of the State of Maryland include Dr. Walter D. Wise, president, Dr. George H. Yeager, secretary, and Dr. J. Albert Chittard, treasurer. Delegate to the American Medical Association (1951 and 1952) is Dr. Ward B. Allen with Dr. Louis H. Douglass as alternate. The delegate for 1950-1951 is Dr. John Warner Parsons, with alternate Dr. Benjamin S. Rich, all of Baltimore.

Deputy Director Appointed—The State Board of Health has appointed Dr. Dean W. Roberts to the newly created position of deputy director of health. He has been a member of the state department of health staff since October 1943 when he became chief of the Bureau of Maternal and Child Health and then chief of the Bureau of Medical Services since its organization in 1945. A native of Georgia, Dr. Roberts received the degree of Doctor of Medicine from Emory University School of Medicine at Emory University, Ga., in 1940.

MICHIGAN

Rapid Treatment Center to Close—The Michigan Rapid Treatment Center at Ann Arbor, which has handled 13,000 cases of venereal diseases during its six years of operation, will close its doors June 30. The closing is in line with the decentralization of public health responsibilities to local communities and with current retrenchment to fit Michigan Department of Health activities within its budget. The center was opened in July 1944 for treatment of patients referred by local physicians and clinics. Now the more general use of new drugs and methods make it possible for physicians to treat patients in about the same time as the Rapid Treatment Center. During the center's six years of operation reported cases of syphilis in Michigan have decreased from 17,000 or 18,000 a year to about 8,700 a year in 1949. The daily case load for the first half of 1950 averaged about 41 patients. With the closing of the center, control and treatment of venereal disease cases reverts to the local county, where it is placed by statute. Twenty-three venereal disease clinics are now operated by local health departments in the state. The Michigan Department of Health will assist in the control programs through the local health departments.

MINNESOTA

State Medical Meeting—The Minnesota State Medical Association held its annual session in Duluth June 12-14 under the presidency of Dr Frank J Elias, Duluth. Guest speakers included

Robert Elman St Louis Massive Upper Gastrointestinal Hemorrhage
Ralph A Reis Evanston Ill Obstetric Manikin Demonstration
C Rollins Hanton Baltimore Advances in Surgical Treatment
Eugene P Pendergrass Philadelphia the Russell D Carmen Memorial
Lecture Koentgen Diagnosis of Silico
Arnold R. Quick Milwaukee Common Hemorrhagic Diseases of Child
hood
Robert E McDonald Milwaukee Dystocia
Stephen Epstein Minneapolis Wis Skin Allergy Newer Trends in
Diagnosis and Management
Stewart Wolf New York Psychosomatic Medicine
Mr Howard A Carter Chicago Secretary Council on Physical Medi-
cine and Rehabilitation American Medical Association The Physics of
Atomic Energy and the Cigar Muller Counter
Col Albert DeCoursey MD Washington D C Medical Aspects of
Atomic Explosion
Col Ernest B Miller St Paul Minnesota Program of Civil Defense
and Disaster Relief

The Arthur H Sanford Lectureship in Pathology was presented by Ancel Keys, Ph D, Minneapolis on 'Diet and Cardiovascular Disease'. At the banquet Tuesday night Laurence M Gould, Ph D, Northfield spoke on 'Are We Ashamed of the Things That Have Made Us Great?' Both scientific and technical exhibits were shown.

MISSISSIPPI

Medical Student Scholarships—The State Medical Education Board has conditionally approved a total of 22 loans for Mississippi medical students who wish to become family doctors in rural areas. The 22 students will start at six different medical schools Mississippi Duke, Jefferson Tulane Vanderbilt and Howard. The board calls attention to the deadline of August 15 for receipt of all applications except those from students planning to enter the University of Mississippi School of Medicine on July 31 who should file applications at once with the board office in Jackson.

MONTANA

State Medical Meeting at Bozeman—The annual session of the Montana State Medical Association will be held in Bozeman July 9-12 under the presidency of Dr Thomas F Walker of Great Falls. Meetings of the House of Delegates of the association will be held Sunday and Monday and the scientific sessions will convene Tuesday and Wednesday in the auditorium of the Gallatin County High School. The speakers at the scientific sessions will be Drs Edw J DeCosta, Walter L Palmer and Peter C Kronfeld all of Chicago. Dr Myne G Peterman Milwaukee Dr Owen H Wangenstein, Minneapolis, and William L Jellison, Ph D Hamilton Mont. The Woman's Auxiliary will hold its annual meeting at the Baxter Hotel. The Montana Chapter of the American Academy of General Practice and the Montana Obstetrical and Gynecological Society also will hold dinner meetings during the period of the state meeting. The Montana Academy of Oto-Ophthalmology will also meet at this time.

NEW YORK

Dr Roach to Head Radiology Department—Dr John F Roach, Baltimore, has been appointed professor and director of the department of radiology at Albany Medical College and radiologist in chief to the Albany Hospital effective July 1. Dr Roach was graduated from Harvard Medical School in 1939 and interned at the U S Naval Hospital in Philadelphia. He served during the last war. He has been associated with Johns Hopkins University School of Medicine as assistant professor of radiology and since 1948 as associate professor of radiology. He is co-editor of the Radiology Section of the *American Journal of Medical Sciences* and has acted as consultant in radioactive isotopes to the Veterans Administration Hospital Fort Howard, Md.

Organize Medical Center Council—The Albany Medical Center Council, a coordinating body to provide expert leadership on broad problems of medical education, public health and hospital care in the area has been formed. Alfred Renshaw, president of Albany Medical College, has been elected chairman of the council, and Dr Robert S Cunningham, Albany, has been appointed executive director, secretary and treasurer. Other members are Mr Frank W McCabe, president of Albany Hospital, Carter Davidson, LL D, chancellor of Union College, Schenectady, Dr Herman E Hilleboe, Albany, state commis-

stoner of health. Evan R Collins, Ed D, president of the New York State College for Teachers, Albany. James F Adams, president of John A Manning Paper Company of Green Island, Gates B Aufesser, chairman of the board of Mohawk Brush Company, and Dr Thomas Hale Jr, director of Albany Hospital. Mr Renshaw and Mr McCabe said that need for the Albany Medical Center Council has been made urgent by these developments. In the past decade Albany Medical College, Albany Hospital and the affiliated institutions have been facing steadily increasing responsibilities with respect to medical education, public health and hospitalization which require decisions of an area-wide nature. The experience of forward looking medical centers in recent years has shown that in those areas where there is a high degree of coordination in medical education, public health and hospital care the council will bring the public the greatest health benefits. Although the function of the council is at present purely advisory, it is anticipated that it will be granted executive powers. Mr Renshaw and Mr McCabe said that Dr Cunningham will continue as dean of the medical college until a new dean is appointed.

New York City

Personals—Dr J A Werner Hetrick received one of the first two honorary degrees ever presented by New York Medical College Flower and Fifth Avenue Hospitals at graduation exercises June 7. Dr Hetrick, dean of the college was commended for his service to his alma mater as a physician, administrator and medical educator for more than 25 years. Dr Anthony J Lanza, chairman Institute of Industrial Medicine, New York University-Bellevue Medical Center has been elected secretary of the board of directors of the New York Tuberculosis and Health Association. Dr Lanza succeeds Mr Myron I Borg Jr who resigned the office to become chairman of the association's executive committee.

Dr De Sanctis Heads New Medical Board—Dr Adolph G De Sanctis has been elected chairman of the newly created Medical Board of University Hospital, New York University Bellevue Medical Center. He has been associated with University Hospital (the former New York Post-Graduate Hospital) since 1915 and is professor and chairman of the department of pediatrics, New York University Post-Graduate Medical School, and director of the department of pediatrics, University Hospital. He was president of the New York County Medical Society in 1937 and served in the Medical Corps of the U S Army in World War I. Election of the following additional officers of the medical board was also announced: vice chairman Dr S Bernard Wortis, professor of neurology, Post-Graduate Medical School and director of the department of psychiatry and neurology of University Hospital, and secretary Dr Charles A Pindexter, professor of medicine Post-Graduate Medical School and attending physician University Hospital.

Blood Transfusion Association—Exercises celebrating its twenty-first anniversary and the opening of its new offices and laboratories at 178 West 102d Street were held June 7 by the Blood Transfusion Association. Dr Benjamin P Watson, president of the New York Academy of Medicine, was the principal speaker. Guests at the reception which preceded the exercises included more than 100 administrators, heads of medical boards and staff members of voluntary, proprietary and municipal hospitals in the New York area as well as representatives of the New York City departments of health and hospitals, the United Hospital Fund and the American Red Cross. The new establishment includes two buildings equipped to receive professional blood donors, process blood, prepare serum, make tests for the Rh factor and bank blood. The association was founded in 1929 under the auspices of the New York Academy of Medicine. Aided by a grant from John D Rockefeller Jr, it began under the name of the Blood Transfusion Betterment Association of New York City. In conjunction with the American Red Cross in 1940 the association undertook the first large scale blood banking plan under which plasma was prepared here for use in England by both civilian and military personnel. A scroll was presented by Dr De Witt Stetten, president of the association, to Dr Arthur F Coca, Oradell, N J, who in conjunction with Dr Edward H L Corwin was one of the pioneers in the formation of the association. Dr Corwin, executive secretary, Committee on Public Health Relations, New York Academy of Medicine has been managing director of the Blood Transfusion Association since its beginning. In his comments at the ceremonies Dr Watson said "At the present time it is estimated that in New York City an average of four

transfusions is being given per hospital bed per year, which means that with more than 40,000 hospital beds in the city we are transfusing 160,000 pints of blood every year. It has been estimated that before long this will reach 250,000 pints."

PENNSYLVANIA

O'Malley Award—The Lackawanna County Medical Society presented Dr. Martin T. O'Malley, Scranton, with the society's Martin T. O'Malley Award in recognition of his outstanding service to the society and the community in the field of public relations. This award is to be presented not more than once a year and not less than once every five years to an outstanding local doctor. Three hundred and fifty persons representing 20 health agencies joined in honoring Dr. O'Malley.

Philadelphia

Jefferson Medical College Anniversary—Jefferson Medical College is celebrating its one hundred and twenty-fifth anniversary. The seventh oldest of the country's medical colleges honored the memory of its founder, Dr. George McClellan, at a memorial luncheon in Philadelphia of the Newcomen Society of America and on other special occasions in the Commencement period. The college was formally opened on March 8, 1825. At that time Philadelphia, with 138,000 inhabitants, was the largest American city. A group of physicians led by McClellan succeeded in establishing a medical department of Jefferson College, a literary college located at Canonsburg in western Pennsylvania. This union was dissolved in a few years when Jefferson Medical College was granted a broad independent university charter. In the founding year McClellan started the first infirmary, which became immediately an adjunct for clinical instruction. This was the first clinic established in any college in the country. In some of the earliest classes Samuel D. Gross, the great surgeon, Washington L. Atlee, an abdominal surgeon, and J. Marion Sims, founder of gynecology, graduated. During the century and a quarter of the institution's history nearly 19,000 doctors of medicine have graduated to serve in all areas of the world. Over 6,000 of these graduates are living.

GENERAL

New Headquarters of Diabetes Association—The American Diabetes Association has established new and permanent headquarters at 11 West 42d Street, New York 18. Its former address was 1 Nevins Street, Brooklyn 17.

Northwestern University Alumni Meeting—The Alumni Association of Northwestern University will meet for cocktails at 6:30 p. m. and dinner at 8 p. m. at the Fairmont Hotel, Garden Room, San Francisco, June 28. Tickets, \$7.50 per plate, are available at the Medical Alumni Office, 303 East Chicago Avenue, Chicago, or may be secured in San Francisco in the General Registration area.

National Board Officers—The National Board of Medical Examiners held its annual meeting on May 3 in Philadelphia. The following new members were elected for a term of six years: Chandler McC. Brooks, Ph.D., professor of physiology, State University Medical Center at New York (Long Island College of Medicine), and Dr. Julian F. DuBois, St. Paul, secretary-treasurer of the Minnesota State Board of Medical Examiners. Dr. Howard T. Karsner, Washington, D. C., consultant to the Office of Scientific Research and Development, was elected president of the board for three years. Other officers elected were Everett S. Elwood, Philadelphia, executive secretary and treasurer, Dr. John S. Rodman, Philadelphia, medical secretary, and Dr. John P. Hubbard, Philadelphia, associate secretary.

Communicable Disease Report—The total number of acute poliomyelitis cases reported for the week ending June 3 was 132, as compared with 103 the previous week. The corresponding figure last year was 156 and the five year (1945-1949) median was 144. Included in the total of 132 cases were 55 from Texas, 18 from California and 12 from Oklahoma. Reported cases of meningococcal meningitis numbered 72, as compared with 62 cases the preceding week and a five year median of 58. For the week ending June 3, 9 cases in Pennsylvania, 6 in Michigan, 6 in Tennessee and 7 in Texas were included. For the same week the following cases were reported: diphtheria 75, infectious encephalitis 9, measles 13,061, Rocky Mountain spotted fever 23, scarlet fever 1,015, smallpox 1, typhoid and paratyphoid 84 and tularemia 13.

F. B. I. Seeks Trace of Murderer—The Federal Bureau of Investigation is seeking the whereabouts of Frederick J. Tenuto, who fled from Pennsylvania after conviction for murder. Medical records indicate that Tenuto has an allergic back-

ground. He has suffered from eczema which may recur. At one time during a recurrence, his eyes were swollen almost shut. Tenuto uses many aliases and is believed to be married. He is 5 feet 5 inches, weighs 143 pounds, is stocky, has a dark complexion, black eyes, brown hair, a small brown mole on the right cheek and a 1½ inch scar over his right eye. On his left forearm is an imperfect tattoo "S. J." and on the right forearm an imperfect tattoo which may be "A. A." "A. A. A." or "A. M. A." Any information relative to this man should be referred to the nearest office of the Federal Bureau of Investigation.

Research Careers in Heart Disease—The American Heart Association is establishing career investigatorships as part of its research program. A career of investigation in the cardiovascular field, supported by the association, will be made available to "a select group of outstanding persons of unusual ability and originality," preferably in the 35 to 45 age group. They will have the opportunity of making research on cardiovascular problems their primary aim. The association will continue to award short term grants to individual investigators, as well as to institutions for research projects. However, the major part of the association's research funds will be given to support persons who are interested in a research career. Nominations for career investigators may be made by members of the Scientific Council of the American Heart Association, deans of medical schools and heads of research units in the United States. Nominations should be sent to Dr. Charles A. R. Connor, the association's medical director, 1775 Broadway, New York 19. The career investigator may work in any institution in the United States which offers adequate facilities and he will be free from additional administrative duties at that institution. Not more than 15 per cent of his time is to be spent in teaching. Certain career investigators may have access to patients, but any income thus created will be considered part of the stipend provided by the American Heart Association.

Certifying Board in Human Nutrition—A certifying board to establish standards of qualification of persons as specialists in human nutrition has been established. The principal purpose of the board is to certify nonphysician specialists. It is not related to the various American medical specialty boards, the Advisory Board for Medical Specialties or the Council on Medical Education and Hospitals of the American Medical Association. However, physicians can be certified if they wish and are able to meet the requirements. Present members of the board are Otto A. Bessey, Ph.D., Chicago; Conrad A. Elvehjem, Ph.D., Madison, Wis.; Wendell H. Griffith, Ph.D., Galveston, Texas; Charles G. King, Ph.D., New York; Leonard A. Maynard, Ph.D., Ithaca, N. Y.; Dr. Frederick J. Stare, Boston; and Dr. John B. Youmans, Chicago. Requirements for admission to examination and certification are: (1) citizenship in the United States or Canada, (2) presentation of evidence of satisfactory moral and ethical standing, (3) Ph.D. in biologic science or M.D. degree from an approved school, (4) courses or training equivalent to a minimum of three semester hours in at least three of the following fields: food technology, microbiology of food, human physiology, large scale food preparation and hospital dietetics, and (5) three years' experience in the practical aspects of human nutrition. Qualified candidates will be considered for certification without examination until June 30, 1951. Further information may be obtained from the secretary-treasurer, Otto A. Bessey, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12.

Marriages

JOSEPH G. DOBOY, Central City, Pa., to Miss Margaret Elizabeth Spillman of Wilmington, N. C., April 28.

RAYMOND I. BAND, Washington, D. C., to Dr. Alice Ruth Messinger of Rochester, N. Y., April 30.

ELLSWORTH F. MALLOY, Fremont, Neb., to Miss Eileen M. McCarthy at Miami Beach, Fla., April 22.

ROGER PAUL BRASSARD, Laconia, N. H., to Miss Vivian Leonora Flanders of Grasmere, April 12.

CHARLES ARTHUR BERTRAND, New York, to Miss Mary Grace Lynch of Woodhaven, recently.

LEONARD J. FLOHR JR., Dallas, Texas, to Miss Emma Lou Holcomb of Tulsa, Okla., May 6.

THOMAS KAY CRAIGMILE, Oakville, Ind., to Miss Doris Ann Wolfe of Streator, Ill., April 19.

RANK O. DAWSON to Miss Annabelle Fisher, both of Charleston, W. Va., May 7.

DEATHS

Van Poole, Gideon McDonald * Honolulu Hawaii, born in Salisbury, N C, Sept 2 1876, University of Maryland School of Medicine, Baltimore, 1899, entered the medical corps of the U S Army in 1900 and retired with rank of colonel in 1920 because of physical disability member of the House of Delegates of the American Medical Association in 1933 and 1936, in 1925 president of the Honolulu County Medical Society and in 1934 1935 president of the Hawaii Territorial Medical Association member of the American Academy of Ophthalmology and Otolaryngology, American Laryngological Rhinological and Otolological Society American Bronchoscopic Society, American Ophthalmological Society Association for Research in Ophthalmology International College of Surgeons and the American Broncho Esophagological Association fellow of the American College of Surgeons specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology fellow of the American College of Surgeons, during World War I served in France and received a decoration from the French government on the staffs of the Queen's St. Francis, Kapiolani Children's and Kuakini hospitals, died April 13, aged 73 of carcinoma of the prostate

Thomas, Frank Howard, Jr * Passed Assistant Surgeon Lieutenant U S Navy, Cynwyd, Pa born at Bangor Maine Oct. 24 1916, University of Pennsylvania School of Medicine, Philadelphia 1942 entered the Naval Medical Corps on June 1, 1942 as a lieutenant (jg) and served his internship at the Naval Hospital, Philadelphia, during the remainder of World War II saw duty at the Naval Hospital San Diego the Terminal Island Receiving Station at San Pedro the Naval Hospital Long Beach Calif, and on the US *Pinkney* (APH-2), later transferred to Naval Hospital, Annapolis Md and in 1948-1949 was under instruction in internal medicine at the University of Pennsylvania Graduate School of Medicine in Philadelphia, assigned to the Naval Administrative Command Armed Forces Staff College, Norfolk, Va, when stricken by illness in November 1949 member of the American Psychiatric Association, died in Naval Hospital Portsmouth Va May 15, aged 33, of poliomyelitis

Patterson, Carl George, Seaside Ore born in Danville Ind Nov 22 1877 Eclectic Medical Institute Cincinnati 1902, formerly practiced in Baker, Ore during which time he was president of the Baker County Medical Society and the Baker County Health Association city and county health officer and affiliated with St Elizabeth's Hospital for many years member of the board of medical examiners of the state of Oregon, of which he had been president on the executive committee of the Federation of State Medical Boards of the United States in 1943-1944 and vice president in 1945 1946, during World War I member of the Baker County Draft Board and in 1940 appointed examining physician for the county selective service board, died May 1, aged 72 of heart disease

Ziegler, Charles Edward * Pittsburgh born in Carlisle Pa, March 23 1871 University of Pennsylvania Department of Medicine Philadelphia 1900 professor emeritus of obstetrics at the University of Pittsburgh School of Medicine, an associate Fellow of the American Medical Association member of the American Association of Obstetricians Gynecologists and Abdominal Surgeons, fellow of the American College of Surgeons for many years affiliated with the Elizabeth Steel Magee Hospital, of which he had been medical director in 1938 received the degree of doctor of science from Dickinson College in Carlisle, Pa died in the Elizabeth Steel Magee Hospital April 26 aged 79

Huether, Archibald Leslie * Phoenix Ariz born in Walkerton, Ont, Aug 2 1892 University of Toronto Faculty of Medicine Toronto, 1920, director of the crippled children's division of the state welfare department member of the American Academy of Orthopaedic Surgeons, specialist certified by the American Board of Orthopaedic Surgery formerly associate clinical professor of surgery and chairman of the division of orthopedic surgery at the University of Utah School of Medicine in Salt Lake City, where he was affiliated with Shriners' Hospital for Crippled Children and St Mark's Hospital, killed at Red Rock, Ariz April 24, aged 57, in an automobile accident

Hanson, William Thomas, Wakefield, Mass, born in Calais, Maine, Jan 12, 1880 Dartmouth Medical School, Hanover, N H 1904, member of the American Medical Association, the New England Society of Psychiatry and the American Psychiatric Association, past president of the Plymouth District Medical Society, retired member of the state department of

mental health served at the state hospitals in Taunton Tewksbury and Bridgewater, for many years associated with the Veterans Administration in Boston, died in the New England Deaconess Hospital in Boston April 20 aged 70

Adams, Lewis Nelson, Qumault, Wash Harvard Medical School, Boston 1934 certified by the National Board of Medical Examiners served during World War II, died April 24, aged 41, of heart disease

Armsbury, Aaron Benjamin, Marine City Mich, Cleveland Medical College Homeopathic 1897 member of the American Medical Association, past president of St Clair County Medical Society president and for many years trustee of the board of education for many years health officer, one of the founders of the Liberty National Bank which he served as vice president and president affiliated with the Port Huron (Mich) General Hospital, where he died April 28 aged 79 of carcinoma

Arnold, Clarence Robert, Colorado Springs, Colo, Denver College of Medicine 1895 affiliated with St Francis and Memorial hospitals, died May 1, aged 80, of multiple sclerosis

Auerbach, Johann Gottfried, New York Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin Germany, 1920, member of the American Medical Association, affiliated with the Flower and Fifth Avenue Hospitals, died recently, aged 56, of coronary thrombosis

Bancroft, Edward Erastus * Wellesley, Mass Harvard Medical School, Boston, 1886, an Associate Fellow of the American Medical Association, formerly consulting physician to Wellesley College affiliated with Leonard Morse Hospital, Natick and the Newton-Wellesley Hospital in Newton where he died April 28, aged 91, of pulmonary embolus

Bryson, Samuel Z, Washington D C, University of Louisville (Ky) Medical Department, 1888 died April 22 aged 88 of heart disease

Busman, Herman, Holland, Mich, Harvey Medical College Chicago, 1903, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1905, formerly associated with the Federal Bureau of Animal Industry, died in Mease Hospital, Duncedin, Fla, April 29, aged 80, of cerebral hemorrhage

Chapman, Willis Earle, Cheboygan Mich, University of Michigan Department of Medicine and Surgery Ann Arbor, 1894, member of the American Medical Association served during the Spanish American War and World War I formerly mayor of Cheboygan city health officer and coroner at one time acting assistant surgeon for the U S Public Health Service for many years surgeon for the New York Central Railroad, member of the House of Delegates of the American Medical Association in 1927, died recently, aged 82

Federn, Paul, New York, Medizinische Fakultät der Universität Wien Austria 1895 member of the American Medical Association and the American Psychoanalytic Association died May 4, aged 78

Gervers, John Henry Richard, Bellaire Mich Detroit College of Medicine 1908 also a graduate in pharmacy, member of the American Medical Association, died April 16, aged 66 of arteriosclerotic heart disease

Gore, Michael Alvord * Granby, Colo, University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore 1918 member of the Connecticut State Medical Society and the New England Obstetrical and Gynecological Society, fellow of the American College of Surgeons, for many years practiced in Bristol Conn where he was affiliated with Bristol Hospital died in Lutheran Sanatorium in Wheat Ridge, April 10 aged 56

Goss, Charles, Philadelphia University of Pennsylvania Department of Medicine Philadelphia, 1900 also a graduate in pharmacy member of the American Medical Association affiliated with Northeastern and Kensington hospitals, died May 6 aged 78 of coronary thrombosis

Hanan, James Taylor * Montclair, N J Columbia University College of Physicians and Surgeons New York, 1899 fellow of the American College of Surgeons served during World War I formerly member of the board of trustees of the public library and a member of the board of health at one time commissioner of safety and public works on the staff of Mountainside Hospital consulting surgeon at Essex County Hospital for Contagious Diseases in Belleville died April 24 aged 74

* Indicates Fellow of the American Medical Association

Hannum, Frank Walter ☉ Muskegon, Mich., Rush Medical College, Chicago, 1914, affiliated with Mercy Hospital and Hackley Hospital, where he died April 19, aged 61, of duodenal ulcer with hemorrhage, hypertension and arteriosclerosis

Harris, Roland Charles, Rochester, N. Y., Syracuse University College of Medicine, 1905, member of the American Medical Association for many years on the staff of Park Avenue Hospital, died April 14, aged 71, of bronchogenic carcinoma

Hart, Henry D., Genesee, Pa., Baltimore Medical College, 1893, member of the American Medical Association, served as president, secretary and treasurer of the board of education, died April 18, aged 89, of cerebral hemorrhage

Heitmuller, George Henry, Washington, D. C., University of Pennsylvania Department of Medicine, Philadelphia, 1894, died May 23, aged 80

Hill, Earl Vernon, Chicago, Rush Medical College, Chicago, 1903, died in the Research and Educational Hospitals, University of Illinois, May 15, aged 72, of arteriosclerotic heart disease

Hopper, Magnus Tate ☉ Brooklyn, New York, Homeopathic Medical College and Hospital, New York, 1891, vice president and for many years director of the Carson C. Peck Memorial Hospital, where he died May 2, aged 83, of coronary occlusion

Howard, John Rudolph, Pineville, Ky., Lincoln Memorial University Medical Department, Knoxville, Tenn., 1915, died April 24, aged 60, of angina pectoris

Hudston, Ranulph, Denver, University of Colorado School of Medicine, Denver, 1910, member of the American Medical Association, died recently, aged 66

Koch, John A., Danville, Ill., Columbian University Medical Department, Washington, D. C., 1897, also a graduate in pharmacy, member of the American Medical Association, fellow of the American College of Surgeons, served on the staff of Blessing Hospital in Quincy, died in the Veterans Administration Hospital April 20, aged 75, of cerebral hemorrhage and arteriosclerosis

Langsdale, Guy H. ☉ Lexington, Ill., Chicago College of Medicine and Surgery, 1911, served as a member of the library board and board of education, on the staff of Brokaw Hospital in Normal, where he died April 24, aged 67, of angina pectoris and cholecystitis

Lavinder, Claude Hervey ☉ Medical Director, U. S. Public Health Service, retired, Monroe, Va., University of Virginia Department of Medicine, Charlottesville, 1895, fellow of the American College of Surgeons, served during World War I, died in the U. S. Public Health Service Hospital in Lexington, April 22, aged 77, of arteriosclerosis with cerebral involvement

Lemmer, George N. ☉ Madison, Wis., Milwaukee Medical College, 1901, served during World War I, for many years health officer of Spooner, died in Wisconsin General Hospital, Madison, April 26, aged 77

Lore, Harry Elmer, Cedarville, N. J., Jefferson Medical College of Philadelphia, 1905, member of the American Medical Association, on the staff of the Bridgeton (N. J.) Hospital, where he died April 22, aged 69

Lowenstein, Hans Jacob, Chestertown, N. Y., Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Prussia, Germany, 1902, member of the American Medical Association, died February 13, aged 71, of hypernephroma with metastases

McDaniel, Edward Bruce ☉ Portland, Ore., Beaumont Hospital Medical College, St. Louis, 1892, Jefferson Medical College of Philadelphia, 1893, fellow of the American College of Surgeons, vice president of the American Medical Association 1924-1925, for many years president of the Oregon State Motor Association, formerly member of the state liquor control commission, died in St. Vincent's Hospital April 23, aged 76

Maupin, Clinton Miller, Waurika, Okla., Barnes Medical College, St. Louis, 1896 and 1897, died in Waurika Hospital March 31, aged 75, of cerebral hemorrhage

Murphy, Amos M., Cape Girardeau, Mo., St. Louis College of Physicians and Surgeons, 1904, member of the American Medical Association, died in Southeast Missouri Hospital April 3, aged 73, of heart disease

Phipps, David Lincoln, Union City, Ind., Kentucky School of Medicine, Louisville, 1892, member of the American Medical Association, formerly coroner of Johnson County, died April 11, aged 86, of coronary occlusion

Pollock, John Roy ☉ Quincy, Ill., Barnes Medical College, St. Louis, 1904, affiliated with St. Mary's and Bleeding Heart hospitals, died April 22, aged 70, of carcinoma of the esophagus

Quinn, James McCaren, Burke, S. D., University of Michigan Medical School, Ann Arbor, 1946, intern at Fairmont Hospital of Alameda County in San Leandro, Calif., died April 3, aged 28

Reid, Robert Francis, Troy, N. Y., Albany Medical College, 1948, interned at the Waterbury (Conn.) Hospital certified by the National Board of Medical Examiners, captain Medical Corps, Army of the United States, attached to the Eighth Station Hospital in Kobe on the Island of Honshu, Japan, where he died April 22, aged 24, of burns suffered when fire wrecked an officers' billet

Ringo, Robert Ellis, Tillamook, Ore., Willamette University Medical Department, Salem, 1901, member of the American Medical Association, past president of the Oregon State Medical Society, died April 14, aged 77

Robinson, John Steven, Chirchile, Ariz., Western Reserve University School of Medicine, Cleveland, 1942, member of the American Medical Association, served during World War II, died in Prescott May 5, aged 33, of subarachnoid hemorrhage and basal skull fracture received in an automobile accident

Rosenberry, Edward Shimer, Stone Church, Pa., Jefferson Medical College of Philadelphia, 1895, member of the American Medical Association, past president of the Northampton County Medical Society, for many years director and president of the Citizens Mutual Fire Insurance Company, affiliated with Easton (Pa.) Hospital, died in Palmerton (Pa.) Hospital April 29, aged 83, of cardiorenal disease

Rule, Andrew Lafayette, Knoxville, Tenn., Tennessee Medical College, Knoxville, 1902, member of the American Medical Association, died May 13, aged 73, of coronary occlusion

Russell, S. Frank, Macomb, Ill., Rush Medical College, Chicago, 1901, member of the American Medical Association, died May 9, aged 72, of chronic myocarditis

Sandor, Ladislaus John, Bridgeport, Conn., Magyar Kiralyi Erzsébet Tudományegyetem Orvostudományi, Pecs, Hungary, 1944, died recently, aged 29

Sangree, Chalmers, New York, Medico-Chirurgical College of Philadelphia, 1891, member of the American Medical Association, died in Amityville February 1, aged 83, of arteriosclerotic heart disease and chronic glomerular nephritis

Sevcik, John Louis, Chicago, Jenner Medical College, Chicago, 1914, affiliated with St. Anthony de Padua Hospital, died May 14, aged 66, of coronary occlusion

Shafer, Frederick William ☉ Camden, N. J., Jefferson Medical College of Philadelphia, 1908, also a graduate in pharmacy, fellow of the American College of Surgeons, for many years affiliated with Cooper Hospital, director of the Camden County Historical Society, died April 12, aged 67, of cerebral thrombosis

Smith, Thomas Harley ☉ Bennettsville, S. C., Jefferson Medical College of Philadelphia, 1908, affiliated with the Marlboro County General Hospital, died in Cherry Grove Beach April 20, aged 69, of acute coronary occlusion

Spoor, John Sellers, Fort Lauderdale, Fla., Medical College of Indiana, Indianapolis, 1901, died April 29, aged 83, of cardiovascular disease

Trenckmann, Otto A., Bellville, Texas, University of Louisville (Ky.) Medical Department, 1893, died in a local hospital February 8, aged 79, of virus pneumonia and arteriosclerosis

Truett, Charles Badgett ☉ Denison, Texas, Baylor University College of Medicine, Dallas, 1940, served during World War II, died March 26, aged 33, of coronary thrombosis

Welland, Herman, Rockbridge Baths, Va., College of Physicians and Surgeons, Baltimore, 1899, formerly practiced in Canton, Ohio, where he was past president of the Canton Academy of Medicine and the Stark County Medical Society, died February 28, aged 78

Wells, Gould Terrance, Lawton, Okla., University of Arkansas School of Medicine, Little Rock, 1927, served during World War II, died in Dallas, Texas, April 18, aged 51

Wren, Charles Wadison, Chicago, Meharry Medical College, Nashville, Tenn., 1915, died in Provident Hospital May 19, aged 60, of cerebral hemorrhage and essential hypertension

Young, Charles Oscar, Los Angeles, Harvard Medical School, Boston, 1893, died April 12, aged 84

FOREIGN LETTERS

NORWAY

(From a Regular Correspondent)

OSLO, May 7, 1950

The Norwegian Radium Hospital

The latest annual report of the Norwegian Radium Hospital, issued as a supplement to the organ of the Norwegian Medical Association *Tidsskrift for Den Norske Lægeforening* covers the year 1948 and gives a good birds eye view of present treatment of cancer in Norway. New growths are commonly associated with old age, but among the patients admitted to this hospital in 1948 there were as many as 450 under the age of 5 years. There were only 34 patients between the ages of 5 and 10 years. There were 549 patients over the age of 70, only 99 more than patients under 5. An index of sickness insurance in Norway is to be found in the fact that among the 5518 patients treated in 1948 there were as many as 2517 whose hospital expenses were wholly or partially defrayed by sickness insurance. A classification of the cases based on the location of the disease shows how enormously important this factor is to the prognosis. Thus among the 29 patients with carcinoma of the esophagus there were only 7 about whom it could be claimed that they had been discharged symptom free or better. Among the 578 patients with carcinoma of the skin there were as many as 547 for whom this claim could be made. The outcome of treatment for carcinoma of the lips was also good with 109 out of 125 patients discharged as symptom free or better. The corresponding figures for hemangioma were 453 out of 474 and for nevus pigmentosus 26 out of 29. The treatment of Dupuytren's contracture was also usually successful, with 36 out of a total of 43 patients discharged as symptom free or better.

Causes of Blindness

A survey of causes of blindness in Norway based on information concerning persons who were blind in 1948 has enabled Dr J. C. Holst of Oslo to publish an important monograph on the subject. His card index shows that at this date there were 3,181 persons who were blind according to the definition in the Norwegian law of July 16, 1936. One of the most striking findings of this survey is that almost half the cases of blindness had hereditary causes (1,565 or 49.8 per cent). As Dr Holst points out earlier surveys elsewhere have shown hereditary diseases to be responsible for blindness in only one third of the total or less. The high hereditary rate in Norway probably reflects the thoroughness with which individual cases of blindness have been studied. Several of the blind having been under close and prolonged medical observation. In the list of cases of blindness due to hereditary disease congenital atrophy of the optic nerve was causative in 102, retinitis pigmentosa in 263, congenital cataract in 304, excessive myopia in 94 and glaucoma simplex in 145 cases. Dr Holst notes that his inclusion of glaucoma simplex among the hereditary diseases may be challenged but he feels sure of his ground on this score. He is diffident about his inclusion of 33 cases of senile cataract.

Dr Holst discusses the possibilities of sterilization to prevent blindness due to hereditary disease and a ban on the marriage of persons with hereditary blindness as a dominant characteristic. Between 1945 and the end of 1949, 5 prospective parents (4 women and 1 man) submitted voluntarily to sterilization to avoid begetting blind offspring.

Turning to blindness not due to hereditary disease, Holst notes that among the 1,596 blind persons in this category 945 were male and only 651 female—a sex disparity which reflected to some extent the comparatively great liability of the male to become blind from trauma (among the 406 traumatic cases of

blindness there were 340 males and only 66 females). All the 50 cases of blindness due to intoxications concerned males (as many as 42 of these 50 cases were due to methyl alcohol poisoning). The rarity of blennorrhea neonatorum as a cause of blindness (only 60 cases) is indicative of the comparative effectiveness of the campaign in Norway against this disease.

Influence of Diet on Diseases of the Circulatory System

Was the comparative immunity to heart disease enjoyed by Norwegians during the occupation of Norway by the Germans a by-product of the rationing and other dietary restrictions they imposed on their victims? At a recent meeting of the Norsk Hygienisk Forening (Norwegian Public Health Association) Prof Axel Strom presented many arguments in favor of this view which he substantiated by various statistics. He pointed out that in the period 1927-1940 the mortality from diseases of the circulatory system rose steadily in Norway. Though some of this rise reflected changes in the age composition of the population a correction of this source of error failed to eliminate this rise altogether. From 1941 onward there was a fall in the mortality from this group of diseases which reached its lowest point in 1943-1944. After the war the mortality from this source mounted. The fall during the war and the rise after it concerned both sexes and every age.

Professor Strom correlated the mortality curves with the rise, fall and rise again of the consumption of articles of food rich in fats and cholesterol in the prewar, wartime and postwar periods respectively. The mortality from arteriosclerosis plus chronic myocarditis fell much more in the strictly rationed towns than in the country areas, in which food restrictions could not so easily be enforced as in the towns. Professor Strom and his assistants have also investigated the frequency of postoperative thrombosis and embolism in a large hospital in Oslo and have found a decline in the frequency of these complications during the war followed by a pronounced rise after it. They do not claim to have proved their case and are not prepared to advocate an immediate and radical change with regard to the nation's dietary but they hope that the evidence they have marshalled so carefully will serve as ammunition for the campaign against overweight and against meals with an abundance of fats.

Hospital Report on Surgical Treatment of Tuberculosis

The editors of annual reports of hospitals may present a mere skeleton composed of figures and statistics or they may surround their figures with running comments to introduce the reader to many interesting problems. The latter course has been chosen by the editors of the last annual report (for 1948) on the activities of the Coast Hospital at Stavern—the most important institution of its kind in Norway. A generation or two ago, tuberculosis requiring surgical treatment was regarded as a disease mainly of childhood and adolescence. Now, with an upward shift of the age at which infection with tuberculosis first occurs, adults outnumber children in hospitals for surgical treatment of tuberculosis. In the present instance there were only 44 patients under the age of 14 admitted to the hospital in the year in question as compared with 147 aged 15 and up. Among the 180 patients discharged from the hospital in this year, there were as many as 91 who could be considered as cured and 72 who were considerably improved. Yet many of these cases were complicated by tuberculosis of the lungs and pleurae. This report includes an informative essay on fashions in the treatment of tuberculosis and on the swing of the pendulum as climate, high altitude heliotherapy and operative treatment enjoy vogues of variable duration.

SPAIN

(From a Regular Correspondent)

MADRID, March 18, 1950

Syndrome of Adiposity, Exophthalmic Goiter and Fever

Dr. Marañón, professor of endocrinology at the University of Madrid, recently published an article in *Boletín del Instituto de Patología Médica* (5:47 [March] 1950) in which he described a syndrome caused by hyperthyroidism. Hyperthyroid diseases are diseases of the nervous system. Charcot regarded them as neuroses of a hysterical type. It is difficult to find the exact limits of hyperthyroid syndromes within the general field of thyrotoxicoses. There are two different groups of thyrotoxicoses, namely, those of primary thyroid origin and those which are secondary to a disturbance of the hypothalamus and the hypophysis. The classic syndrome of exophthalmic goiter and that of hyperthyroidism without goiter, or neurologic goiter, correspond to the secondary group. They constitute the majority of hyperthyroid syndromes and should be included in Charcot's and Trousseau's classic neurogenic conception. The speaker discussed the hyperthyroid syndrome of hypothalamic origin, consisting of fever, vitiligo and emotional hypersensitivity (the so-called affective clonus). The hyperthyroid symptoms are few, whereas clinical nervous symptoms are predominant. There are insomnia, nervousness, tachycardia and disorders of digestion. The clinical symptoms of various forms of hyperthyroidism of hypothalamic origin are different than those regarded as classic symptoms of exophthalmic goiter. The thyroid symptoms, although moderate, are sufficient to permit diagnosis. They consist of mild exophthalmus, small thyroid adenoma, either diffuse or nodular, sensations of accelerated vitality and, frequently but not always, moderate increase of the basal metabolic rate, the lack of which increase does not conflict with the diagnosis. The author describes a new atypical neurogenic hyperthyroid syndrome, consisting of adiposity, exophthalmic goiter and fever. Obesity, as a constant accompaniment of hyperthyroidism, was described long ago by West, Mackenzie and Kocher as "plum-thyrotoxicosis" in exophthalmic goiter. The adiposity predominates about the waist line and down to the legs, in a form similar to that of the adiposogenital syndrome. Sometimes it is sufficiently pronounced to be comparable with Barraquer-Simmonds' cephalothoracic lipodystrophy. Basedow in 1840 and Marañón and Blanco Soler in 1926 pointed out that there is a causal relation between hyperthyroidism and obesity from the waist line to the legs. Fever is always present. Frequently it is higher than that of common noninfectious diseases. It lasts for an indefinite period, diminishes or disappears during rest at night and increases after either physical effort or emotion and also during the premenstrual period. In this syndrome most of the symptoms of hyperthyroidism are of the nervous type, including tremor, tachycardia, nervousness and anxiety. The symptoms indicate nervous disorders rather than hyperthyroidism. The presence of a moderate exophthalmus, a mild retraction of the upper eyelid or a moderately enlarged thyroid may point to the causative thyroid disorder. The basal metabolic rate is increased to +15 to +25 per cent. An epinephrine injection in these cases raises the basal metabolic rate and causes a strong neurosympathetic and circulatory response, during which the syndrome of "emotion without emotion," which the author described several years ago, is produced.

The syndrome of Basedow type adiposity and fever develops almost exclusively in women between 35 and 50 years of age. At the beginning this syndrome is usually related to intense emotions, anxiety and preoccupation or emotions of a sexual type, including sexual crises of pregnancy, lactation and menopause. The diagnosis of this syndrome is difficult, because the

patient rarely shows symptoms of hyperthyroidism. The patients as a rule consult the physician on account of adiposity, fever and nervousness. The author studied 27 clinical cases and concluded that the syndrome is of hypothalamic origin. A secondary group with a tendency toward increased basal metabolic rate either actual or latent, or occasional slight increase in size of the thyroid and glycosuria is of thyroid origin although induced by the primary stimulation of the hypothalamus. Lipodystrophy from the waist line to the legs has also the characteristics of increase in weight of hypothalamus-hypophyseal origin. The hypothalamic mechanism for the control of body temperature is now well understood.

The author treated hyperthyroidism with thyroidal derivatives, sedatives of the sympathetic nervous system and psychotherapy, obtaining excellent results. In some obstinate cases radiotherapy of the hypophyseal region and the thyroid region was successful. Thyroidectomy is indicated only in rare cases.

Society of Pathology of Digestion and Nutrition

This society held its third annual meeting Dec 16-17 1949 at the assembly hall of the Colegio Oficial de Médicos Madrid. The official topic was cirrhosis of the liver. The inaugural session was presided over by Dr. Heliodoro G. Mogana of Madrid, president of the society. Official speakers in the morning sessions were Drs. Castro Mendoza, Morales Pleguezuelo and Arias Vallejo, who spoke on experimental cirrhosis of the liver. Drs. Galín and Andoriz collaborated with Dr. Arias Vallejo. Official speakers in the afternoon were Drs. Pombo, Suarez and Diaz Rubio, who spoke on splenomegalic cirrhosis, cirrhosis in children and pathogenesis and treatment of cirrhosis respectively. The paper dealing with early diagnosis of cirrhosis of the liver contained an evaluation of the different tests of function of the liver in comparison with the histologic changes shown by biopsy of the liver during laparotomy. A general discussion of the articles on the official topic was held December 17. Drs. Ortiz de Landazuri, Morana, Jimenez Vilaclara, Calvo, Morales Pleguezuelo, Vivanco, Ortega Roldán, La Figuera, Rocha, Andreu Urra, Pinos, Mogana, Torres Hernandez, Oliver and Larra discussed the paper. In the afternoon Drs. Farreras Valenti, Magaña, Llebaria Becard, Ciscar Ruiz, Pinos, Villaclara, Vidal Ribas, Diaz Rubio, Muñoz and Romero Calatayud read papers on cirrhosis of the liver.

SWEDEN

(From a Regular Correspondent)

STOCKHOLM, May 14, 1950

Alternating Plethora and Scarcity of Doctors

Within a period of three decades Sweden has witnessed a plethora of doctors and, at the present time, a scarcity of them. As Dr. Gustaf Myhrman recently pointed out, during the first of these three decades medical students jostled one another and had to wait for one another because of restricted accommodation in laboratories and hospitals. A curriculum supposed to last eight years ran into nine years while the students queued up for vacancies. The situation was unfortunate, also, for the student who had struggled through this bottleneck and had passed his final examinations, as internships and other opportunities for postgraduate training were sadly inadequate. For want of something better he accepted medical work without pay or for a pittance, and when his seniority was such that he could apply for the appointment of a local medical officer of health his competitors were still numerous. The average age of the 28 doctors applying for such a post in 1935 was 52 years. Doctors investigating the possibilities of emigration to other lands were warned that a Swedish medical diploma was worth little elsewhere. Furthermore, how was the Swedish

speaking doctor to gain the confidence of patients who spoke another language?

Dr Myhrman quotes the following figures to show how the number of doctors in Sweden has increased since 1919 when there were only 1,706. In 1929 there were 2,493, in 1939 there were 3,370 and in 1947 there were as many as 4,234. Yet there is a shortage of doctors now. The situation is, however, not so paradoxical as it may seem at first sight for in 1920 there were only 308 hospital appointments in all the general hospitals in Sweden. By 1930 this figure had risen to 632. In 1940 it was up to 1,130, in 1944 it was 1,327 and in 1950 it is about 1,600. At the same time there has been an appreciable rise in the number of appointments of local medical officers of health and the like.

During 1949, 177 students qualified as doctors and 59 doctors died. This gives a surplus of 118. But during the same year, 104 new hospital appointments were created and 15 new openings for medical officers of health were provided. Dr Myhrman wonders whether the nation can afford all the new, more or less official openings recently created for the medical profession. Within a few years the new medical high school in Gothenburg will be adding to the annual output of new doctors.

Pituitary Gland Implantation for Chronic Arthritis

As far back as 1942, Gunnar Edström published in conjunction with his colleague Axel Westman a report of a case of chronic arthritis in which pituitary gland implantation gave promising results. In 1949, encouraged by a recent visit to the United States, Edström undertook several pituitary gland implantations at a rheumatism hospital in Lund. These operations reported on in a recent number of *Nordisk medicum* were carried out in September and October 1949 under local anesthesia. All 10 patients operated on suffered from chronic polyarthritis, which had lasted four months to four years. The pituitary gland was taken from a 7 month human fetus in one case; in the other cases the pituitary glands of recently killed calves were employed and were implanted in the deep subcutaneous tissues of the gluteal region. The operation was complicated in 2 cases by transitory suppuration; in the other cases the operation wound healed by first intention.

Edström is careful not to make extravagant claims with regard to lasting effects, but among the first 9 patients there were 6 who were discharged from the hospital objectively and subjectively symptom free and with a relatively normal sedimentation rate. During their stay in the hospital there was a rapid diminution of stiffness of and effusion into the affected joints. Tenderness on pressure diminished and appetite improved with a gain of weight. The slight euphoria was reminiscent of results in treatment with pituitary adrenocorticotrophic hormone (ACTH). Among the remaining 3 cases there were 2 in which some improvement could be claimed. Thus there was only 1 case in which the reaction to this treatment was disappointing. At this time the observation period for the first 9 cases was only two to three months. It seemed that the response to treatment was most satisfactory among the younger patients: all who were under the age of 40 responded relatively well to this treatment.

In Stockholm also pituitary gland implantation has recently been undertaken in several cases, and Axel Westman of the gynecologic Karolinska Hospital reported last year on his observations in cases of ovarian disorders with signs of endocrine disturbances. He prefers the term "implantation" to "transplantation," as he does not believe that the implanted pituitary gland cells persist as such when introduced into the body. He suggests that implantation sometimes produces a better effect than current hormone therapy because the former provides the body with a number of pituitary gland hormones. Like Edström Westman obtains his pituitary glands from newly slaughtered calves.

Psychologic Causes of Gastric Ulcer

At St Erik's Hospital a team of doctors headed by F. Barány has undertaken systematic investigations of the psychologic factors likely to play a part in provoking gastric ulcer. In a series of 108 cases of gastric and duodenal ulcer they found some acute mental conflict in 54 cases and a chronic mental conflict in 29 cases. In 22 cases psychopathologic symptoms without mental conflict were observed. Thus there were only 3 cases in which no psychologic factors could be found in connection with the ulcers. One of the most dramatic cases observed was that of a policeman, aged 40, given the task of searching a villa whose owner was suspected of having arms and petrol illegally. The owner was not at home when the policeman called and the owner's wife, who suffered from heart disease, was so disturbed by the policeman's visit that she took to her bed. The policeman found his task so distasteful that he finished it quickly. Next morning the owner of the villa telephoned "You have murdered my wife, who died directly after you left the villa." The newspapers made much of the incident which affected the policeman profoundly and is said to be the precursor of a gastric ulcer. As Malmros and Hieronim have lately pointed out, the ultimate prognosis for gastric and duodenal ulcer treated somatically only is most unsatisfactory, and it is not likely to improve as long as the investigator is mainly concerned with the presence or absence of a radiologically demonstrable lesion.

BELGIUM

(From a Regular Correspondent)

LIÈGE, May 20, 1950

Tularemia in Belgium

The laboratories discovered an epidemic of tularemia among leporidae and certain rodents in southeast Namur during December 1949. This epidemic produced infections in human beings, which were confirmed by serologic tests. Observations to date indicate that the handling of hares and, more rarely, of infected wild rabbits has been the source of contamination. An extension of the disease does not seem likely, at least during the next months.

The bacillus of tularemia is sensitive to chloramphenicol and aureomycin, streptomycin although less active, may nevertheless produce good results. The Central Hygiene Laboratory at Brussels has put itself at the disposal of the medical corps for serologic tests in the diagnosis of the infection.

Course in Orthopedic Surgery

The Belgian Society of Orthopedic Surgery passed the following resolutions. Considering the growing importance of orthopedics and surgery, the social repercussions of the care given to those injured in accidents and to the disabled, the backward state of Belgium in this respect in comparison with other countries, particularly Great Britain, France, Holland and the United States, and the necessity for remedying the present educational situation, the Society expresses the unanimous intention of creating a chair of orthopedic surgery at every Belgian university, with obligatory attendance of courses.

First International Congress of Gerontology

This congress, which will be held at Liège July 9-12, 1950, will deal with cardiovascular diseases and senescence and with nutrition, endocrinology and senescence. The creation of an international association of gerontology will be discussed during the congress. Prof. L. Brull is the president of the organizing committee and Dr. A. Divry is secretary. All correspondence regarding attendance, the program or the organization of the conference should be addressed to Prof. F. Brull at Clinique medicale, Hôpital de Bavière, Liège, Belgique.

BRAZIL

(From a Regular Correspondent)

RIO DE JANEIRO, May 20, 1950

A New Phenomenon of Immunity

Dr Julio Muniz, of the Rio de Janeiro Oswaldo Cruz Institute, described a new phenomenon associated with immunity reactions, which he called "conditioned hemolysis." During experimental work conducted to simplify the technic of hemagglutination tests for the diagnosis in chronic cases of American trypanosomiasis (Chagas's disease), the author found that in such cases the red blood cells, when in contact with the serum of the same patient, were hemolyzed if they had previously been adsorbed with the polysaccharid fraction of *Schizotrypanum cruzi*. The same phenomenon was observed in rabbits immunized with the culture forms of the parasite.

It is a common practice in the technic of hemagglutination to use sheep's blood cells as the element to be sensitized with the fraction under study. But, since the antigenic structure of the blood cells has heterogenic components which are able to react with heterophilic antibodies existing in many human serums, and these antibodies may cause agglutination as well as hemolysis, it is necessary to have a previous adsorption of the serums with these blood cells, to retain the nonspecific antibodies for the fraction under investigation. In American trypanosomiasis, which is now being studied by Dr. Muniz, this step of the technic is important, since there are heterogenetic components in the antigenic structure of the trypanosoma, as the same author reported in 1944. Later and still unpublished studies with the collaboration of M. Carneiro Felipe demonstrated the existence, sometimes in high titers, of heterophilic antibodies in the serum of patients with trypanosomiasis. To avoid the previous adsorption with normal sheep's blood cells, the author used red cells of the patient or of any human donor of the O group, which possess no agglutinin for the isoagglutinins of man. It was during the performance of this technic that the author noted the occurrence of hemolysis, the intensity of which varied with the serum concentration, thus preventing the observation of the agglutination.

In contrast with what is observed in specific hemolysis due to the direct action of a hemolytic sensitizer on the constituents of the red cell itself, in the aforementioned case the hemolysis results from the action of a specific sensitizer for the adsorbed fraction. The author calls this phenomenon, which constitutes a particular immunity reaction, "conditioned hemolysis." The possibility of this phenomenon's being a peculiar characteristic of the aforementioned fraction of the *Schistosoma cruzi* is now being investigated.

Mitsuda's Reaction in Leprosy

Dr J. Lopes de Faria, of the department of pathology, University of São Paulo, published a report summarizing the results of his experimental studies on Mitsuda's reaction in leprosy. The nature of this reaction is not yet established. In the opinion of some authors it is nonspecific, independent of the antigen-antibody mechanism and due to the natural resistance of the tissues, but most of the investigators admit that the reaction is an allergic phenomenon, in spite of its positivity in normal persons and its long incubation of three and four weeks in contradistinction to the early results of the hypersensitive reaction. Recent experimentation by Dr. de Faria with adult dogs from nonleprous communities confirmed that animals not previously inoculated with Mitsuda's antigen presented a nodular reaction, of tubercular structure, to the lipid fraction of the antigen. In contrast with the reaction to the whole antigen, the reaction to the lipid fraction appears early, is smaller in area and has a quicker evolution. Histologically, the granulomatous reaction to the lipid fraction was also earlier, because the lipids were free, the epithelioid cells making their appearance about the fourth day after the injection. The later appearance of the reaction to the whole antigen, its longer evolution

and its greater intensity are due to the lipids being not free but bound to the bacilli, the liberation of the lipids being delayed as the disintegration of the bacilli takes place slowly. Important also was the comparison of the microscopic and microscopic features of the reaction to Mitsuda's antigen in the dog and in the tuberculoid leprous patient. Microscopically the dog did not present the early reaction, the nodular late reaction appeared earlier in the leprous patient than in the dog, without any latent period, in the dog the ulceration of the nodule was constant, but it was rare in the leprous patient. Microscopically the initial inflammatory reaction of the leprous was partially hyperergic in nature, characterized by its greater intensity, higher number of eosinophilic leukocytes in the exudate and early macrophagic mobilization, the earlier appearance of granulomas in the leprous patient (48 hours) than in the dog (fourth day) and its longer duration (90 days), the bacillary phagocytosis was less intense between one and 48 hours, and the bacilli remained for a longer time in the reaction of the leprous patient (88 days) than in the dog (35 days).

The author believes that in the leprous patient only the early reaction is allergic in nature, the late reaction being due to the natural resistance of the organism, which is responsible for the breaking down of the majority of Hansen's bacilli and the liberation of the lipids that elicit the nodular granulomatous reaction. The presence of such a natural resistance explains the Mitsuda phenomenon in the dog and in the normal person with a negative tuberculin reaction. The absence of natural resistance explains the negative Mitsuda reaction, as for instance in children and in lepromatous persons. Supporting the view that the Mitsuda reaction is nonspecific in nature, independent of antigen-antibody mechanism, is its positivity with several acid-fast bacilli and with a normal skin extract. Dr. de Faria points out that the milder degree and the quicker evolution of the reaction to the lipids when compared with the response to the whole antigen might even be wrongly regarded as negative. Therefore, the histologic examination is useful, showing the granulomatous structure of the reaction. The rare discordance between the early and the late reactions, i.e., one negative and the other positive, or vice versa, is explained through the presence of natural resistance (positive late reaction) without allergic hypersensitivity (negative early reaction), or vice versa. This would explain the relation between the early and the late reactions, the first indicating the presence of allergic hypersensitivity and the second indicating the presence of natural or acquired resistance.

The author also calls attention to the criterion for the reading of the Mitsuda reaction. In doubtful and in anomalous cases, with positive reactions in lepromatous patients and negative reactions in tuberculoid patients the histologic examination of the reaction is indispensable in order that one may determine its positivity (tuberculoid structure) or negativity (lepromatous structure). This examination affords the only reliable way of reading the reaction, as according to the author's observations there are reactions in lepromatous patients which would be considered positive and in reality are negative, because they present the lepromatous structure. Dr. de Faria thinks, therefore, that in his previous reports as well as in those of other authors there was only pseudopositivity. It is important to ascertain this pseudopositivity in several instances. It may occur in lepromatous patients when one uses an antigen prepared from acid-fast bacilli other than Hansen's. In improved or healed lepromatous patients, a tuberculoid reaction means that immunity or acquired resistance to leprosy developed, thus providing verification of the presence of acquired resistance in lepromatous leprosy. The histologic examination would also be important in children whose reactions to the lepromin test became positive through BCG injection and in the lepromatous with reactions made positive because of repetition of Mitsuda reaction or treatment with lepromin.

CORRESPONDENCE

POSTOPERATIVE TETANUS AND IMMUNITY

To the Editor—In the otherwise excellent clinical note on "Postoperative Tetanus" by Henry J Van Duine in *THE JOURNAL* (143 175 [May 13] 1950) there apparently is an error in the last paragraph page 176, in the sentence reading "A year later immunity can be boosted by either toxoid or toxin." Tetanus toxin is not used in clinical medicine for the reason that the administration of a dose of toxin sufficiently large to produce an adequate response would be extremely hazardous.

I suspect the author may have intended to use the word "antitoxin" instead of "toxin." For those who have had basic immunity to tetanus established toxoid is much to be preferred to antitoxin in subsequent immunization. The immune response from a booster dose of toxoid is higher and more lasting and serum reactions are avoided. Toxoid was used exclusively for increase of immunity on exposure in the armed forces during World War II, and the results were excellent as the author points out.

W G WORKMAN, MD,
National Institutes of Health,
Bethesda, Md

To the Editor—In the article entitled "Postoperative Tetanus" by Henry J van Duine in *THE JOURNAL* May 13, 1950, the following statement appears in the conclusion "A year later the immunity can be boosted by either toxoid or toxin." I feel that this statement should have been challenged by the Editor before appearing in print. It is perhaps technically possible to utilize toxin as a booster dose e g, a Schick test in the case of diphtheria. No person would, however, have the temerity to use toxin for the purpose implied. No preparation of either tetanus or diphtheria toxin for this purpose is licensed by any department of government as far as I am aware.

DONALD T FRASER MB, Professor of Hygiene
and Preventive Medicine, University of Toronto

UNDECYLENIC ACID AND PSORIASIS

To the Editor—Since publication of the article by Perlman (J A M A. 139 444 [Feb 12] 1949) in which he reported favorably on the use of undecylenic acid in the treatment of psoriasis, varying degrees of success have been recorded by different authors. Drug salesmen have in many instances been enthusiastic. At a staff conference comprising some 30 dermatologists from the Department of Dermatology University of Pittsburgh, over 200 cases of psoriasis treated by the method outlined by Perlman were reviewed. Undecylenic acid was administered for three to six months. The universal conclusion was that in not a single case did any improvement occur that could not be accounted for by the vagaries of the disease.

WILLIAM B GUY, Department of Dermatology
and Syphilology, University of Pittsburgh

POSTCHOLECYSTECTOMY SYNDROMES

To the Editor—In his article on Postcholecystectomy Syndromes in *THE JOURNAL* (142 1262 [April 22] 1950) Dr Pribram states (page 1263) that morphine injections cause contractions of the sphincter of Oddi followed by an increase in intraductal pressure and that antispasmodics, like atropine, cause the pressure to drop or at least prevent a rise in pressure after simultaneous administration of morphine. In discussing the

medical treatment of this syndrome (page 1267) the author states that morphine should not be given without an adequate dose of atropine sulfate.

Morphine (and other phenanthrene derivatives) cause contraction of smooth muscle by direct action on the muscle itself, whereas atropine relaxes smooth muscle by preventing acetylcholine from entering the muscle cells—the atropine does not act on the smooth muscle itself. Therefore atropine will not relax the morphine-induced spasm of the sphincter of Oddi. Inhalation of amyl nitrite will relax this type of spasm. Nitroglycerine administered sublingually also decreases the spasm, the effect being less pronounced but more prolonged than that produced by amyl nitrite.

RICHARD D AMELAR,
Senior Medical Student,
New York University College of Medicine

SKIN DISINFECTION WITH ETHYL ALCOHOL

To the Editor—In a recent editorial in *THE JOURNAL*, "Ethyl Alcohol for Skin Disinfection" (142 1079 [April 8] 1950), the use of alcohol was stated to be "deficient in its inability to kill spores and tubercle bacilli, deficiencies which are shared by all commonly used skin disinfectants."

I believe that this should be modified, or even reversed. Dr C R Smith reported more than two years ago (*Pub Health Rep* 62 1285 [Sept. 5] 1947) that alcohol is a very good antiseptic for use against the tubercle bacilli. It is active at 50 to 70 per cent strengths and isopropyl is as good or better than ethyl, as well as cheaper. It acts rapidly and can be used on the hands, small surfaces and on many small articles.

A quotation of this information appeared in *THE JOURNAL* Aug 7, 1948, page 1352, in a note to the editor, and has appeared since then in several hospital journals. The cresols and the less odorous phenyl-phenols have again been proved to be effective, they can be used in the same situations which have been mentioned for alcohol usage, and also for cleaning of floors and other surfaces. They are apparently efficient in dilutions of 1:100 and 1:200. I mention these points only because aseptic technique and care of tuberculous patients is of increasing importance and because the best methods have not been certainly and generally known.

WILLIAM H OATWAY JR, M D,
La Brea, Calif

DERMATITIS FROM IODOACETIC ACID

To the Editor—I should like to confirm the evidence given by your contributors (Marcus and Frerichs J A M A. 142 805 [March 18] 1950) of the somewhat acute dermatitis produced by contact of the skin with iodoacetic acid. Some twenty years ago I had occasion to make some of this compound and the symptoms produced by contact with my hands were identical with those described in case 2. I had the impression that larger crystals of iodoacetic acid destroy the skin, and the resulting sores proved difficult to heal. I found that the use of gloves and manipulation of the compound behind the glass screen of a fume chamber solved the difficulty.

It is worth noting that chloroacetic acid, a much commoner chemical, produces a similar if less severe dermatitis, particularly on repeated exposure, and it is stated in textbooks that bromoacetic acid behaves similarly.

J A MARRIOTT, M Sc, Ph D, Leicestershire, England

Medical Motion Pictures

Feeling All Right 16 mm, black and white sound showing time 30 minutes Produced in 1948 by the Southern Educational Film Production Service Inc., University of Georgia for the Mississippi State Board of Health Procurable on rental or purchase from the Communication Materials Center of Columbia University Press, New York 27

This is a dramatic presentation directed toward early diagnosis and early adequate treatment of syphilis. It carries the experience of several persons with syphilis to logical conclusions. It shows one couple depending on nostrums for treatment with an unfortunate outcome and another couple approaching their problem through normal treatment and diagnostic channels to a successful outcome. It points out that diagnosis and treatment of syphilis can be obtained from either the family doctor or the public health clinics.

Since this film consists of a Negro cast with the exception of Health Department personnel, it is obviously intended for the Negro population. It is designed to encourage voluntary blood tests. The story runs smoothly, and the sequences follow in logical order. It is entertaining and instructive. Epidemiologic follow-up of known contacts could have been more strongly emphasized.

The film should be suitable for showing to public health personnel, nurses and lay groups and would be particularly useful for rural areas with a concentrated Negro population. Photography, narration and direction are excellent.

The Thinnest Slice 16 mm black and white sound showing time 24 minutes Produced in 1949 by the University of Southern California Department of Cinema in cooperation with the School of Medicine coordinated by the Department of Development. Procurable on loan (service charge) or purchase from the Audio Visual Service Department University of Southern California Los Angeles 7

This is a report type motion picture depicting in detail the technique worked out by Drs. Richard F. Baker and Daniel C. Pease for thin sectioning and electron micrography of tissues. The authors claim to have succeeded, for the first time, in photographing chromosomes of the salivary gland of *Drosophila*.

The film shows the modification necessary to the standard microtome equipment and the sharpening of the blade with the Fanz automatic sharpener. The steps in the preparation of the specimen are presented in great detail. Much time is taken up by details of printing and developing a standard technique too familiar to require such treatment. This is reminiscent of a Hollywood production of a scientific subject, close-ups of the author's face and musical accompaniment are adaptations from other fields of motion picture production hardly needed in scientific films. The film gives a satisfactory picture of advances in electron microscopy. It is suitable for showing to physicians in general, medical students and laboratory technicians.

Life with Grandpa 16 mm black and white sound showing time 17 minutes Produced in 1949 by The March of Time. For information with regard to the availability (rental or purchase) of this film write The March of Time Forum Films 360 Lexington Avenue New York 17

This motion picture depicts the problems of the aged resulting from increased life expectancy. Some of the reasons are given for increased expectancy and, therefore, the increase in older persons in the population. Possible means of solving the resulting problems are suggested, among them pensions, social security, continued employment and retirement on earlier earnings, but no solution is given to the major problems of inactivity and insecurity that characterize so many older persons.

This report type film presents the problem effectively and points to a few things accomplished today, but no effort is made to solve the problem. It should be suitable for showing to classes in sociology, economics and related interests as well as to medical students. It would also be useful for any age group and would be particularly helpful as a means of opening adult discussions on the problems of an aging population. The photography, narration and direction are excellent.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written* Various centers July 21 *Oral* Chicago Oct. 8-11 Sec. Dr. Curtiss B. Hickox 45 Fifth Ave. New York 22

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written* Various locations Sept. 14 *Oral* Detroit Oct. 20-22 Sec. Dr. George M. Lewis 66 East 66th St. New York 21

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct. 16 *Oral* Sec. Dr. William A. Werrell 1 West Main Street Madison 3 Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY Chicago Oct. 19-21 Applications no longer accepted Sec. Dr. W. J. German 789 Howard Ave. New Haven Conn.

AMERICAN BOARD OF OPHTHALMOLOGY *Written* Various centers Jan. 5-6, 1951 San Francisco March 11-15 New York May 31-June 4 Sec. Dr. Edwin B. Dunphy 56 Ivie Road Cape Cottage Maine

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Part II* Chicago Jan. 25-26 Final date for filing applications is Aug. 15, 1950 Sec. Dr. Harold A. Sofield 122 South Michigan Avenue Chicago 3

AMERICAN BOARD OF OTOLARINGOLOGY Chicago October Sec. Dr. Dean M. Lierk University Hospital Iowa City

AMERICAN BOARD OF PATHOLOGY St. Louis Oct. 13-14 Sec. Dr. Robert R. Moore 507 Euclid Ave., St. Louis 10

AMERICAN BOARD OF PEDIATRICS *Oral* Chicago, Oct. 13-15 and Boston Dec. 13 Exec. Sec. Dr. John McK. Mitchell 6 Cushman Road, Rosemont Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION *Oral and Written* Boston, Aug. 26-27 Final date for filing applications is April 1 Sec. Dr. Robert L. Bennett 30 N. Michigan Ave. Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY Next examination December 1950 Final date for filing applications is Sept. 1

AMERICAN BOARD OF SURGERY *Written* Various centers Oct. 23 Final date for filing applications is July 1 Sec. Dr. J. Stewart Rodman 225 South 15th Street Philadelphia

AMERICAN BOARD OF UROLOGY Chicago Feb. 10-14, 1951 Final date for filing applications is Sept. 1, 1950 Sec. Dr. Harry Culver 7935 Sunnyside Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

ALASKA * Juneau Sept. 5 Special examinations given on application. Sec. Dr. W. M. Whitehead Box 140 Juneau

ARIZONA * Phoenix July 22 Sec. Dr. J. H. Patterson 316 W. McDowell Road, Phoenix

CALIFORNIA Examination *Written* Los Angeles Aug. 21-24 Sacramento Oct. 16-19 Examination *Oral and Clinical* for *Lorain Medical School Graduates* Los Angeles Aug. 20, San Francisco Nov. 12 *Reciprocity* *Oral Examination* Los Angeles Aug. 19, San Francisco Nov. 11 Sec. Dr. Frederick N. Scitena 1020 N. Street, Sacramento 14

CONNECTICUT * Examination Hartford July 11-12 Sec. to the Board Dr. Creighton Barker 160 St. Roman St. New Haven *Homeopathic* Derby July 11-12 Sec. Dr. Donald A. Davis 38 Elizabeth St. Derby

DELAWARE Examination Dover July 11-13 *Reciprocity* Dover July 20 Sec. Dr. J. S. McDaniel 229 S. State St. Dover

HAWAII Examination Honolulu July 10-13 Sec. Dr. I. L. Tilden 1020 Kapiolani St. Honolulu

IDAHO Boise July 10 Sec. Mr. Armand L. Bird 303 Sun Bldg. Boise

MAINE Examination and *Reciprocity* Augusta July 11-12 Sec. Dr. Adam P. Leighton 192 State St. Portland

MASSACHUSETTS Examination Boston July 11-14 Sec. Dr. George L. Schadt Room 37 State House Boston 33

NEVADA Endorsement Carson City August 7 Sec. Dr. George H. Ross 112 Curry Street Carson City

NEW HAMPSHIRE Concord Sept. 13 Sec. Dr. John Samuel Wheeler 107 State House Concord

NEW MEXICO * Santa Fe Oct. 9-10 Sec. Dr. Charles J. McGee Coronado Building Santa Fe

NORTH DAKOTA Examination Grand Forks July 5-7 *Reciprocity* Grand Forks July 8 Sec. Dr. C. J. Glaspeil Grafton

OREGON * Examination Portland July 6-8 *Endorsement* Portland July 28-29 Sec. Mr. Howard I. Bobbitt 609 Failing Building Portland

PENNSYLVANIA Examination Philadelphia and Pittsburgh July 11-14 Act Sec. Mrs. Marguerite G. Steiner 351 Education Bldg. Harrisburg

PUERTO RICO Examination Santurce Sept. 5 Sec. Mr. Luis C. Coll Box 3717 Santurce

RHODE ISLAND * Examination Providence July 6-7 Sec. Mr. Thomas B. Casey 366 State Office Building Providence

SOUTH DAKOTA * Sioux Falls July 18-19 Sec. Dr. C. E. Sherman 300 First National Bank Bldg. Sioux Falls

WASHINGTON * Seattle July 17-19 Director Department of Health Mr. Edward C. Dohm Olympia

WEST VIRGINIA Examination Charleston July 10-12 Sec. Dr. N. H. Dyer Capitol Bldg. Charleston

WISCONSIN * Milwaukee July 11-13 Sec. Dr. C. A. Dawson River Falls

* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA Examination Juneau last week in August Sec. Dr C Earl Albrecht, Box 1931 Juneau
COLORADO Examination. Denver Sept 13 14 Sec Dr Esther B Starks 1459 Ogden St. Denver 3
FLORIDA Jacksonville Nov 11 Sec Mr M W Emmel University of Florida Gainesville
IOWA Examination Des Moines July 11 Sec Dr Ben H Peterson Coe College Cedar Rapids
MICHIGAN Examination Ann Arbor Oct 13 14 Sec Miss Eloise LeBeau, 101 North Walnut Street Lansing 15
NEBRASKA Examination Omaha, Oct 3 4 Director Mr Oscar F Humble Room 1009 State Capitol Building Lincoln 9
NEW MEXICO Examination Santa Fe Sept. 17 Sec Mrs Mar Huente K Cantrell Box 1522 Santa Fe
OKLAHOMA Examination Oklahoma City, Sept 15 Sec Dr Clinton Gallaber 813 Braniff Building Oklahoma City
RHODE ISLAND Examination Providence August 9 Chief Division of Professional Regulation Mr Thomas B Casey 366 State Office Building Providence
TENNESSEE Examination Memphis July 7 8 Sec Dr O W Hyman 874 Union Ave Memphis 3
TEXAS Examination Austin October Sec Brother Raphael Wilson 106 Nalle Building Austin
WASHINGTON Examination Seattle, July 12 13 Director Department of Licenses Mr Edward C Dohm Olympia

Bureau of Medical Economic
ResearchMEDICAL ECONOMIC REVIEWS
AND ABSTRACTS

Prepared by the Staff of the Bureau of Medical
Economic Research

Maternity in Great Britain A Survey of Social and Economic Aspects of Pregnancy and Childbirth Undertaken by a Joint Committee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee Cloth Price \$4 Pp 232 Oxford University Press 114 5th Ave New York 11 Amen House Warwick Sq London EC4 1918

The survey in Great Britain of the costs of pregnancy and of the uses made of the maternity services was undertaken for two reasons. First, the National Health Service Act is remodeling the health services of Great Britain and existing circumstances and needs of the maternity services must be taken into account or the new services will merely continue the conditions of the past. Second, Britain's fertility rate has fallen dramatically since the 1870's. Many attribute the high medical and other costs associated with childbirth as a deterrent to parenthood in all classes of society.

The main questions to be answered by the survey were the availability, use and effectiveness of the maternity services to all classes and regions of the country, the need and availability of domestic help during pregnancy and confinement, and the nature and amount of expenses associated with childbirth. These aspects of maternity were studied in relation to type of local authority and geographic region, to order of birth, to social group as determined by the occupation of the husband and to the degree of crowding of the household as measured by the number of persons per room.

The health visitors of the local authorities carried out this survey of all mothers who were delivered in England, Scotland and Wales during a week of 1946 by questioning them eight weeks after the delivery. The information obtained by this sampling method and by area studies of five local authorities indicated the conditions encountered by all mothers in Britain in 1946 conditions assumed to be unchanged at the present.

There has been rapid expansion in the number of antepartum services since the foundation was laid by the 1918 Maternity and Child Welfare Act, which "confirmed and extended the permissive powers of local authorities to establish antenatal clinics, educational classes, dental treatment, and home visiting for expectant mothers, and allowed local authorities to provide food and milk, free or at reduced price, for those in need of it during pregnancy." According to the survey, 0.9 per cent of the women of Britain did not receive any antepartum supervision, 72.9 received supervision provided by the local author-

ities at clinics, through general practitioners' schemes and through home visits by municipal midwives and health visitors, and 26.2 per cent of the women received antepartum care through private "specialists," practitioners and midwives. Municipal antepartum care, given largely at clinics, was felt to be more effective than private care, but at the same time private practitioners and midwives did fill definite needs in rural areas and for unmarried or working mothers and for those with large families. Although the exact relationship has not been determined, it was shown that early antepartum care is associated with decreasing incidence of prematurity and neonatal death and with increasing incidence of breast feeding. Even under the most favorable economic conditions, less than half of the expectant mothers sought the full benefits of supervision by beginning routine clinic attendance during the first three months of pregnancy.

Although the Ministry of Health has encouraged it, only 5.4 per cent of the women questioned were confined in public assistance hospitals, general hospitals, maternity homes and nursing homes. The main factors other than birth order and type of local authority which influenced the place of confinement were social class and domestic responsibilities. Of the women confined in hospitals, 5.6 per cent were there because of unsuitable home conditions or need for medical care, against only 1.7 per cent there through preference. Chief complaints of care during confinement among those attending hospitals were the lack of privacy during labor and delivery, limitation of visiting hours, unnecessarily early waking hours and lack of individual attention.

Although private practitioners were in charge of 3.2 per cent of home confinements, in many cases they did not actually carry out delivery. In hospitals, delivery by physicians was even less frequent than among women confined at home.

The main complaint made by the women answering the questionnaires was the lack of relief from pain during childbirth. Only 5.2 per cent of those delivered in hospitals and 2.0 per cent of those delivered at home received any form of analgesia or anesthetic. Expectant mothers were more likely to receive analgesia if it was a first birth, if they lived in rural areas or if they were attended by physicians. The shortage of midwives trained to administer analgesia, defective equipment and lack of transportation facilities for the necessary equipment were among the factors limiting the use of analgesia.

An important aspect of childbirth is the heavy expenditure. Although many of the differences between social classes were minimized by price control and rationing, the well-to-do wives spent on an average of £57 and the manual workers' wives £31 on first births. With subsequent births all groups spent less, with greater economizing in the lower classes. National Insurance Act maternity allowances provided for only a small proportion of the total costs of having a child. Under the National Health Service Act all mothers are entitled to free confinement care through municipal domiciliary services and in public wards of hospitals. Even this will not substantially reduce childbirth costs, as confinement costs are small in relation to the costs of clothing and equipment for the child.

Other aspects covered by this survey included postnatal care, infant welfare clinics, prematurity, infant feeding, expectant mothers in gainful occupations, help in the home and illegitimacy.

Several general recommendations were made in addition to the specific ones made in reference to each aspect of the survey. It was emphasized that there is need for each patient to receive continued care by a single physician. It was pointed out that although it is necessary to make childbirth safe, attention should also be paid to the material and psychological needs of expectant mothers.

Further studies have been suggested to increase the value of the present one. Regular collection of statistical data should be continued as a check on the efficiency of the maternity services. The most important aspects of prenatal care should be determined. The relation of employment to incidence of prematurity and stillbirth should be investigated. In future studies the health of the mothers and infants should be observed for a period longer than two months after the present survey.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Validity of Contract in Restraint of Professional Practice—The plaintiff physician filed suit for an injunction to restrain a former associate from engaging in the practice of medicine in violation of the terms of a written contract. From a judgment in favor of the plaintiff, the defendant appealed to the Supreme Court of Kansas.

The defendant, a young doctor from Chicago seeking a location, contacted the plaintiff, a physician and surgeon with a well established practice in the city of Hutchinson, Kan. The plaintiff was 69 years of age and anxious to secure a good young doctor who would relieve him of some of his heavy responsibilities. After a visit and conference together, the defendant agreed to enter into the practice of medicine with the plaintiff in Kansas and a written contract was executed. Among other things, this contract provided "It is further understood and agreed by and between the parties hereto that this agreement may be terminated at any time by either party on giving the other one month's notice in writing, and further, that on termination of this agreement and failure on the part of the parties hereto to agree and enter into a partnership agreement as aforementioned that second party [defendant] will not engage in the practice of medicine or surgery within a radius of 100 miles from Hutchinson, Reno County, Kan., for a period of ten years from the date of this agreement." After the execution of this contract, in December 1947, the defendant returned to Chicago, and on Feb. 1, 1948 he returned to Hutchinson and started work pursuant thereto. It appeared that the plaintiff was in every way satisfied with the defendant's progress and that the defendant was a good young physician. In November 1948 the parties commenced to discuss terms of a proposed partnership agreement. Quite naturally, said the Supreme Court, each of them sought to protect his own interests as he viewed them. The trial court found that each of them acted in good faith. The unfortunate but important fact, in view of the terms of the contract, is that they did not agree on the terms of the contemplated future agreement. They did not agree by December 1948 or by February 1949. By mutual agreement the defendant remained on a salary basis while the parties continued in their efforts to reach an agreement. Failing in such effort, the defendant left the plaintiff on March 2 and started his own practice in the city of Hutchinson. The plaintiff informed the defendant by letter that if he engaged in the practice in violation of the contract he would be obliged to seek legal redress to protect his interests. The defendant, however, continued his practice. Being a competent young physician and having ingratiated himself with the plaintiff's patients it was quite natural a substantial number of them should follow him. Accordingly the plaintiff's practice suffered.

The defendant first contended that the contract was not fairly and equitably entered into. The trial court resolved the issue against the defendant's contention. On appellate review, said the Supreme Court, this court is concerned with evidence which supports the findings made and not with evidence contrary thereto. Notwithstanding this recognized rule, we have studiously examined the entire record. There is ample evidence to support the finding and conclusion of the trial court on this issue, and we cannot disturb it. The defendant's argument is based on the theory that the words "upon termination of this agreement" cannot be interpreted to mean "upon expiration of this agreement" and that the word "termination" can apply

only in the event a thirty day notice to terminate the contract had been given. The trial court disagreed with that interpretation. It took the position that the contract, considered as a whole, was intended to mean that if the contract expired it was discontinued for any reason, and no partnership agreement was entered into by the parties, the restrictive provision could apply. We think said the Supreme Court the trial court was correct in concluding that the defendant's interpretation of the word "termination" was too narrow and that the restrictive provision did apply.

The real question in the lawsuit, said the Supreme Court, was the validity of the restraint imposed on the defendant by the terms of the restrictive covenant. In a prior case determined by the Supreme Court of Kansas, it was said that the real question is never whether there is any restraint of trade but always whether the restraint is reasonable in view of all the facts and circumstances and whether it is inimical to the public welfare. If it is reasonable and does not contravene public welfare the contract will be upheld.

The defendant contended that the restraint in the instant case, covering a 100 mile radius, was unreasonable and therefore the entire contract invalid and no part of it enforceable. There is no doubt that the practice of some physicians and surgeons extends over territory far beyond a 100 mile radius from the place of their residence, said the Supreme Court. Was the 100 mile radius reasonable here? We need not answer, said the Supreme Court. The trial court believed that the defendant could be reasonably protected in his practice of medicine and surgery by reducing that territory as follows: "the city of Hutchinson, Kan., and within five miles from said city as now constituted, and in the hospitals or elsewhere in such space or territory." In rendering this judgment the trial court followed authorities which adopt the doctrine that courts of equity should and will enforce restrictive covenants to a territorial extent reasonably necessary to afford protection to an established business or profession but no further.

The defendant then argued that the word "from" in the provision "within a radius of 100 miles from Hutchinson" did not bar him from practice within the city of Hutchinson. That is the city, said the Supreme Court, in which the parties were practicing. Manifestly they intended to contract with regard to it. A contract should be read and construed in the light of the intention of the parties at the time it was entered into, if possible without doing violence to it. We have no doubt the court continued, that the parties intended the defendant should not be permitted to practice within the city of Hutchinson or anywhere else within a radius of 100 miles from the city. Whether the beginning point of the measurement be fixed at the center, or at the outer edge, of the city obviously becomes immaterial. It would embrace this city in either case.

The subject of public policy as applicable to cases of this precise character is fully discussed in many cases, said the Supreme Court. The instant contract is not violative of any positive statute or well established rule of law. It is the duty of courts to sustain the legality of contracts in whole or in part when fairly entered into, if reasonably possible to do so rather than to seek loopholes and technical legal grounds for defeating their intended purpose. It also has been said and we think rightly, that the paramount public policy is that freedom of contract is not to be interfered with lightly. There is no attempt at monopoly here, said the Supreme Court. Every physician and surgeon is at liberty to practice within the territory involved, and we can find no reasonable basis for disturbing the trial court's finding and conclusion on the ground of public policy. Accordingly the judgment of the trial court in granting the plaintiff an injunction restraining the defendant from continuing to practice in Hutchinson, Kan., was affirmed.—*Struven v. Struven*, 215 P. (2d) 133 (Kansas, 1950).

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests must be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

33 175-342 (Feb) 1950

- Prevention of Retinal Venous Occlusion with Special Reference to Ambulatory Dicumarol Therapy. B. A. Klien—p. 175
Gonioscopic Observations During Evolution of Acute Iridocyclitis. J. François—p. 185
Present Status in Treatment and Prevention of Trachoma. M. Hirschfelder—p. 188
Keratoconjunctivitis Sicca. Review with Survey of 121 Additional Cases. J. W. Henderson—p. 197
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Megalopapilla. New Congenital Anomaly. A. Franceschetti and R. H. Bock—p. 221
Psychology of Poor Reader. W. H. Crisp—p. 235
Studies of Eye in Old Age. II. Hole in Macula. Clinico Pathologic Study. A. L. Kornzweig and M. Feldstein—p. 243
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Histiochemical Localization of Cholinesterase in Ocular Tissues. G. B. Koelle and J. S. Friedenwald—p. 253
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Cyanide Sensitivity and Cytochrome-C Content of Crystalline Lens. L. O. Ely and W. A. Robb—p. 269
Aurocyanin in Ophthalmology. J. G. Bellows, V. M. Richardson and C. J. Farmer—p. 273
Enucleation and Allied Procedures. III. New Procedure Involving Use of Exoplat. J. S. Guyton—p. 283

Prevention of Retinal Venous Occlusion.—According to Klien increased blood volume, high viscosity slowing of the blood flow and easy coagulability of the blood may be some of the predisposing factors in retinal venous occlusion. Subjective symptoms are intermittent visual obscurations or a slight constant reduction of the central visual acuity for which no apparent reason can be found. Engorgement of the venous tree or portions of it and edema of the corresponding sectors of the optic papilla and/or of the retina along the involved veins are the objective signs of gradually developing impairment of venous circulation. Preventive anticoagulant therapy has two main objectives, to gain time for the development of patent collateral channels and to permit repair of damaged venous endothelium by reducing strain on the vessel wall. The length of time over which preventive administration of dicumarol* is used is of greater importance than a radical reduction of the prothrombin level to 20 or 25 per cent, as is necessary for curative purposes. The preventive management may be started with curative doses, consisting of 400 mg. as the first dose, 100 mg. for the following three days and 50 mg. daily for the following four days during the patient's initial period of hospitalization. Dicumarol* may be combined with heparin in selected cases to utilize the latter's inhibitory influence on fibroblastic growth. Dicumarol* treatment may be continued while the patient is ambulatory with a prothrombin level of 50 per cent for many months or years. The cumbersome necessity for frequent prothrombin determinations is counterbalanced by the inexpensive and easy oral administration of the drug. The time required for effective treatment with dicumarol* differs, depending on the severity of the initial symptoms.

Keratoconjunctivitis Sicca.—Henderson reports on 121 patients with keratoconjunctivitis sicca who were admitted to the Mayo Clinic during the period 1938 to 1946. Seventeen of these were male, and the average age among them at the time of onset of symptoms was 47.1 years. There were 104 female patients. Their symptoms developed between the ages of 40 and 60 although 37 women presented symptoms before the onset

of the menopause. Dryness, burning or smarting scratching and excess of a typical mucoid secretion were the most frequent symptoms. A definite sign, although variable in degree, was the diminution in the production of tears. The Schirmer test remains the most practical for determining this important sign but the diagnosis should not be made on the basis of this test alone. Minute breaks in the surface of the cornea, gray foci of various shapes and size and threadlike filaments were the most important clinical features observed in the corneas. About 40 of the 121 patients had the distinctive features of Sjogren's syndrome, namely keratoconjunctivitis sicca, xerostomia, pharyngitis sicca, laryngitis sicca, rhinitis sicca and enlargement of the parotids. Only 11 of these 40 patients had arthritis, and only 20 of the total 121 patients presented definite evidence of arthritis. The author believes, contrary to the opinion of other workers, that arthritis is a rather incidental observation and not an integral part of the symptom complex. Thirty patients were followed for one and a half to ninety-six months after electrocoagulation of the puncta and canaliculi but relief from the ocular symptoms or improvement of the eyes were evidenced in only 10. Keratoconjunctivitis sicca seems to be but one phase of a disease which affects both eyes with approximately equal intensity and which is caused by an altered function of the lacrimal glands of unknown etiology. The treatment of this annoying and sometimes disabling eye condition must remain on a symptomatic basis until the etiologic problems are answered. Its distribution among both sexes and various age groups is probably more common than has heretofore been realized.

American Journal of Physiology, Baltimore

160 217-440 (Feb) 1950 Partial Index

- Antagonism of Adrenocorticotrophic Hormone and Adrenal Cortical Extract to Desoxycorticosterone. Electrolytes and Electroshock Threshold. D. M. Woodbury, Chi Ping Cheng, G. Sayers and L. S. Goodman—p. 217
Influence of Variation in Environmental Temperature and Thyroid Status on Growth and Feed Consumption of Male Mouse. M. Maqsood and E. P. Reineke—p. 253
Emotional Hypothermia in Rabbits. R. Grant—p. 285
Do Kangaroo Rats Thrive When Drinking Sea Water? B. Schmidt Nielsen and K. Schmidt Nielsen—p. 291
Water and Electrolyte Distribution in Blood and Tissues in Splenectomized Dogs Before and After Hypotonic Saline Injections. L. Eichlerberger and M. Roma—p. 295
Relation of Glomerular Filtration Rate and Sodium Tubular Rejection Fraction to Renal Sodium Excretion. D. M. Green, W. C. Bridges, A. D. Johnson and others—p. 306
Renal Tubular Elimination of N-Methylnicotinamide. K. H. Beyer, H. F. Russo, S. R. Gass and others—p. 311
Changes in Renal Functions Associated with Diabetes Insipidus Precipitated by Anterior Hypothalamic Lesions. C. A. Handley and A. D. Keller—p. 321
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Antiproteolytic Activity of Serum from Dogs with Experimentally Induced Peptic Ulcers. E. E. Clifton and L. E. Young—p. 348
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Pressor Substances in Arterial Hypertension. Activity and Amine Content of Crude Extracts of Blood. C. C. Stocf and H. A. Schroeder—p. 409
Influence of Liver on Vascular Reactivity. I. H. Page—p. 421
Relationship of Portal Hypertension and Irreversibility of Shock. R. Cohn and H. Parsons—p. 437

American Journal of Public Health, New York

40 119-250 (Feb) 1950 Partial Index

- Mental Health Principles in State and Local Health Program Commonwealth Fund Demonstration H B Cottrell—p 119
- A Health Department Increases Awareness of Its Staff for Mental Hygiene I C Berlien—p 126
- Nature of Mental Health Programs in Health and Educational Agencies Under National Mental Health Act—Role of Consultant H C Schumacher—p 131
- Attack Rates Among Immigrants to Infected Human Populations J Ipsen Jr—p 136
- Apparent Decline in Tuberculous Infection Among Household Associates of Sputum Positive Cases of Tuberculosis W R Ames and H C Miles—p 143
- British National Health Service Role of Health Officer J A Scott—p 151
- *Chemicals Introduced in Processing of Foods F C Bing—p 156
- British National Health Service General Practitioner Services J S Collings—p 165
- Health—Twenty Years Later Case Study in Public Administration S S Kauvar, L Florio and J P Dixon—p 170
- Investigation of Smog Incident in Donora, Pa., and Vicinity J G Townsend—p 183
- Special Leaflets for Use in Controlling Toxemia and Excessive Weight Gain in Pregnancy J H Ferguson and A G Keaton—p 194

40 251-374 (March) 1950 Partial Index

- Voluntary Health Insurance on National Scene Present Status of Voluntary Health Insurance M C Klem—p 260
- Voluntary Health Insurance on National Scene Group Health Cooperatives J Voorhis—p 268
- Multiphasic Screening Examinations—Extension of Mass Screening Technique L Breslow—p 274
- Staphylococcal Food Poisoning Report of Two Related Outbreaks, and Discussion of Data Presented M Feig—p 279
- Comparative Study of Media for Detection of Streptococci in Water and Sewage W L Mallmann and E B Seligmann Jr—p 286
- Brucella Ring Test in Mixed Raw Milk Supplies H E Bremer—p 290
- Preliminary Report of Epidemiological Studies on Poliomyelitis and Streptococcal Infections Lansing Neutralizing Antibody and Anti streptolysin "O" Surveys of California Cities, Texas, North Carolina Mexico, Pacific Islands and Japan W McD Hammon, G E Sather and N Hollinger—p 293
- Public Health Administration in England J A Scott—p 307
- Progress in Meeting Eye Problems of Children F M Foote—p 313
- Demonstration Program for Decentralization of Pediatric Education and Services G L Brooks—p 317
- Brucella Ring Test Its Potential Value in Control of Brucellosis A V Hamilton and A V Hardy—p 321

Chemicals in Foods—Bing states that chemicals are added to foods during processing for nutritional or functional reasons, or for both. The chemicals added to enhance the nutritive value of foods include vitamins and minerals. Some ingredients added to foods for functional purposes have nutritional value, as do the various calcium salts. Ascorbic acid added to certain foods as a stabilizer contributes additional small amounts of vitamin C. Lithium chloride in salt substitutes is particularly harmful. Among the chemicals introduced in foods for functional purposes are the wetting agents, emulsifiers, stabilizers, so-called food improvers and preservatives and antioxidants for fats. Some of these are potentially hazardous. The addition of monochloroacetic acid to soft drinks, beer and wine has been condemned. Possible hazards involved in the use of thiourea on frozen peaches, on cut apples and to prevent mold in wheat and oranges are discussed. The use of nitrogen trichloride as a bleaching and maturing agent for flour has been discontinued because of possible harmful effects. The use of mineral oil in food products has been prohibited, but instances of violations of this rule have involved popcorn, salad oils and dressings, mayonnaise and a few other food products. There are a number of chemicals being offered for sale to food manufacturers about whose health hazards little is known. Parahydroxybenzoic acid is being offered as a preservative in place of benzoic acid. There is a patent covering a process for the treatment of flour with diluted nitric acid, by this a deep yellow color similar to that of egg yolks is produced, so that a bun or a sweet roll has a better appearance. The author discusses "bread softeners" and emulsifiers and shows that apart from possible harmful effects, their use poses a nutritional problem. If their inclusion in foods encourages or permits the replacement of appreciable amounts of ingredients such as milk, butter, eggs and shortening, there is the possibility that the nature and nutritive quality of foods may be significantly altered.

Angiology, Baltimore

1 1-108 (Feb) 1950

- *Patho Physiology and Treatment of Lower Leg Stasis Syndrome Bauer—p 1
- Present Status of Sympathectomy in Treatment of Vascular Disease G H Pratt—p 9
- Peripheral Arterial Embolism Study of 330 Unselected Cases of Fism of Extremities H Haimovici—p 20
- Gangrene of Heel S S Samuels—p 46
- Endarteritis Obliterans (Obliterative Endarteritis) D W K—p 53
- Prediction of Thromboembolism L Loewe R P Lasser and M A—p 64
- *Lymphedema G de Takats and M H Evoy—p 73
- Arteriographic Examination of Lower Extremity D A Campbell and R G Smith—p 100

Lower Leg Stasis Syndrome—Bauer practiced division and resection of the popliteal vein on 194 patients with a lower leg syndrome of chronic edema, induration, ulceration and is caused by venous stasis. The erect position in man causes a certain amount of venous overloading in the lower parts of the leg. The superfluous blood is easily removed by contraction of the calf muscles which act as a peripheral heart in healthy persons. This mechanism postulates normal functioning of the valves in the femoral and popliteal veins, but these valves are incompetent in patients with lower leg edema, induration ulceration and bursting pain. The valves of these large veins were destroyed by previous thrombosis or by phlebosclerotic process. Superfluous blood cannot be effectively removed by contraction of calf muscles, every relaxation of these muscles being immediately followed by a backflow of blood down the valveless main trunk. This results in permanent venous stasis followed in due time by pain and tissue changes. Popliteal vein division in the form of blocking of the main trunk in the popliteal region has been devised as a remedy for this condition. The calf muscle contractions drive the blood through numerous high-calibered channels into the muscle veins of the thigh and backflow cannot occur after the operation, which appeared to be entirely free of risk. Immediate results were good. The time of observation was too short to permit a final evaluation but a follow-up of 77 patients for one to two and a half years showed encouraging aspects with a smooth after course in the absence of any symptoms of stasis in 63 patients. Relapse occurred after a brief interval in 9 patients who had a small ulcer at the lower end of a leaking communicating vein. There was no return of pain and no generalized edema. Prompt healing resulted from the division of that communicating vein and a sclerosing injection. Treatment failed in 5 patients with serious recurrences.

Lymphedema—De Takats and Evoy report 150 patients, 30 males and 115 females, with lymphedema. In 28 the condition was classified as congenital, 11 traumatic, 58 inflammatory, 22 degenerative (malignant) and 31 of unknown origin. Cases of thrombophlebitic edema were not included, although a lymphatic component was usually present in the authors' group. This simple classification is of value in understanding the mechanism of lymphedema. With increasing knowledge, the number of cases of unknown origin should gradually fall in one of the groups. The acute, chronic and slowly progressive stages of the disease are important from the standpoint of therapy. Acute lymphedema if treated early and intensively yields rapidly to therapy and leaves the least amount of irreversible edema and fibrosis. Attention is called to the beneficial effects of elevation, elastic compression, mercurial diuresis, heparinization and sympathetic blocks, each having their proper place, used alone or in combination. Roentgen therapy and small doses of typhoid vaccine were employed to decompress the swollen lymph nodes and clear their sinusoids from debris and fibrin deposits. Chronic, late cases cannot be controlled by conservative measures. Excision of the diseased tissues was performed in 28 patients who were followed from one to twenty-five years. The cosmetic results were satisfactory in 17, doubtful in 2 and poor in 6. Congenital lymphedemas in patients with operative treatment early between the ages of 6 and 10 years resulted in better than edema of the inflammatory type.

Annals of Allergy, Minneapolis

8 1-148 (Jan-Feb) 1950 Partial Index

- Cottonseed Protein vs Cottonseed Oil Sensitivity I Background and Personal Experience II S Bernton—p 1
- Id II Case of Cottonseed Oil Sensitivity T G Randolph and W N Sisk—p 5
- Id III Atopen Content of Cottonseed Oil R S McGrath—p 11
- Id IV Objective Approach to Diagnosis of Food Allergy as Applied to Cottonseed Atopy M H Loveless—p 15
- Id V Cottonseed Asthma Protein vs Oil J H Mitchell—p 23
- Idiopathic Allergy as Implementing Background Factor in Anterior Poliomyelitis Exploratory Study A P Locke and A F Coca—p 26
- Clinical Evaluation of Chlorcyclizine (Perazil) E A Brown L A Fox J P Maher and others—p 32
- Multiple Sclerosis and Allergy Management with Histamine Therapy Part II H D Jones—p 44
- Standardized Patch Test L Schwartz—p 63
- P rterial Use of Neo-Antergan Clinical Study J Miller—p 68
- Allergic Toxemia and Fatigue A H Rowe—p 72
- Mercuhydrin Sensitivity Report of Case A H Fineman and S J Rosenberg—p 80
- Oral Procaine Hydrochloride Therapy in Asthma M M Schapiro and M Sadove—p 85
- Enteric-Coated Antihistamines S W Simon—p 90
- Emotional Trauma Preceding Onset of Allergic Symptoms in Group of Children H Miller and D W Baruch—p 100
- Remarks on Theories of Antibody Formation A Rostenberg Jr and M J Brunner—p 108
- Clinical Evaluation of Thienylpyramine Hydrochloride (Histadyl) in Treatment of Allergic Symptoms E Schwartz L Levin and M Wallman—p 117
- Pulmonary Fibrosis Complicating Allergic Asthma G L Waldbott—p 120
- Epinephrine in Treatment of Migraine P A Sperber—p 126

Histamine Therapy in Multiple Sclerosis—Jones states that nearly all of 152 patients with multiple sclerosis showed some form of allergic sensitivity. Those with multiple food allergies apparently were more spastic than those with other allergies. It is generally conceded that foods are the worst offenders in cerebral allergies. Histamine was given subcutaneously intravenously or by iontophoresis. Administration by iontophoresis was begun only after a large number of intravenous injections had been given. At present 62 patients are being treated by histamine iontophoresis at the author's hospital. The exacerbations of multiple sclerosis are reduced in number under the allergy management and histamine therapy and the remissions are lengthened. Some form of histamine therapy is indicated for the balance of the patient's life. The earlier treatment is started the more successful it is. In the chronic cases varying degrees of improvement occur and continue as long as the patient continues treatment. Histamine therapy does not cure the disease but merely arrests symptoms. Patients who had been bed fast were able to use a wheel-chair or even became ambulatory. In others, all symptoms subsided and exacerbations were absent for over two years.

Annals of Western Medicine & Surgery, Los Angeles

4 107-154 (March) 1950

- Resection of Bladder Rectum and Vagina for Recurrent Carcinoma of Cervix. W H Boyd—p 113
- Myocarditis and Simulating Conditions E L Coodley—p 116
- Complete Heart Block with Auricular Flutter Report of Case D B Hinshaw and H J Hoxie—p 124
- Principles of Therapy of Alcoholic Patients J D Moriarty and A W Pearson—p 127
- Facial Characteristics of Infants with Bilateral Renal Agenesis Report of Case J Vaughn—p 131
- Problems of Peptic Ulcer S M Jordan—p 133
- All Silk Versus All Catgut Technique in Thyroidectomy D C Collins—p 136
- Oil Anesthetics in Surgical Incisions N P Plechas—p 137
- Treatment of Dysmenorrhea E M Robertson—p 140

Resection of Bladder, Rectum and Vagina for Recurrent Carcinoma of Cervix—Boyd reports the case of a 26 year old woman, who in 1946 complained of a profuse vaginal discharge with intermenstrual bleeding during the preceding year and a weight loss of 26 pounds in that period. Biopsy revealed a squamous cell carcinoma of the cervix. Since irradiation produced no change in the macroscopic appearance of the cervix, a Wertheim operation was performed, which confirmed the diagnosis. Radiation therapy was resumed, but the patient had increasing bladder and rectal pains. Because of the patient's age, severe pain and discomfort, it was thought advisable to do

an exploratory laparotomy with the view of performing resection of the bladder and rectum in the absence of metastasis outside the pelvis. After catheters were placed in the ureters the abdomen was opened and explored through a low midline incision. There was no evidence of metastatic involvement of the abdominal organs or of the lymph nodes. The bladder, rectum and vagina were removed en masse. The woman was operated on three more times for a urinary fistula that developed in January 1948, for a fecal fistula that developed in July 1948 and for a recurrence of the fecal fistula in March 1949. Biopsies at each of these operations failed to show malignant changes. At present her weight is normal and she is doing most of her housework. She uses a colostomy bag. The case demonstrates the practicability of an extensive surgical procedure for the treatment of recurrent carcinoma of the uterine cervix. Additional time is required to determine whether the operation will eradicate the disease.

Archives of Internal Medicine, Chicago

85 365-544 (March) 1950

- *Effects of Delta 5 Pregnenolone in Rheumatoid Arthritis R Davison P Koets W G Snow and L G Gabrielson—p 365
- Is There a Relation Between Diet and Blood Cholesterol? C F Wilkin son Jr E Blecha and A Reimer—p 389
- Concentrations of Cholesterol Total Fat and Phospholipid in Serum of Normal Man Report of Study with Special Reference to Sex Age and Constitutional Type V Kornerup—p 398
- *Lower Nephron Nephrosis Report of Treatment of 44 Patients by Repeated Replacement Transfusions J Dausset—p 416
- Hypertensive Cardiovascular Disease (Acute) (Malignant Hypertension) Clinical and Pathologic Study of 39 Cases J E Koepsell J F Kuzma and F D Murphy—p 432
- Acute Porphyria Report of Case C H Gray—p 459
- *Hyperthyroidism Treatment with Radioactive Iodine S Fettelberg P S Kaunitz S Silver and others—p 471
- Hypermetabolic States Without Hyperthyroidism (Nonthyrogenous Hyper metabolism) S Silver P Poroto and E B Crohn—p 479
- Pulmonary Nodules Associated with Mitral Stenosis S H Sahn and I Levine—p 483
- Lutembacher's Syndrome Associated with Dextrocardia I Innerfield—p 490
- Syphilis Review of Recent Literature H Beerman L Nicholas M S Buerk and W T Ford—p 496

Pregnenolone in Arthritis—Davison and co workers administered the synthetic steroid delta 5 pregnen-3 beta-ol-20-one (pregnenolone) by the intramuscular route to 7 men and 5 women with rheumatoid arthritis or spondylarthritis. No obvious effects were observed from daily administration of 50 mg of the drug. Many patients responded promptly to 100 mg whereas others needed 200 mg daily. Experience indicated that 200 mg is the adequate daily dose effecting remission in rheumatoid arthritis. Symptoms and signs of active disease return usually within a few days, when the drug is withdrawn. Toxic effects have not been demonstrated from daily injection of the drug over a four month period.

Lower Nephron Nephrosis—Dausset treated 44 patients with the anuric phase of lower nephron nephrosis by repeated replacement transfusions. Twenty nine of the 44 patients recovered. Replacement transfusion proved particularly effective in patients with acute total renal failure due to the presence in the blood stream of (1) a nondialyzable heme pigment as in transfusion incompatibility, massive hemolysis, crush syndrome and burns or (2) a poison such as mercury linked with a non-dialyzable protein. Experience proved the efficiency of this method in severe cases of hemolytic septicemia due to Clostridium perfringens, presenting nervous and hemorrhagic signs. The purpose of replacement transfusion is to remove nonprotein nitrogen from the body. Study of the decrease in the level of blood urea nitrogen after replacement transfusion revealed that urea nitrogen balance may be obtained with the transfusion of a quantity of blood equal to the total blood volume of the patient. Transfusion of a quantity equal to twice the blood volume may lower the blood urea nitrogen by 33 per cent from the beginning to the end of the procedure and by 25 per cent the day after the procedure. The quantity of blood and the number of repeated replacement transfusions required should be calculated accordingly. Replacement transfusions resulted in striking improvement of the patient's general condition because

panel discussions as reported reveal at times concern with minutiae and at other times give one a glimpse of the grand pattern of research

The most outstanding report in the entire volume is the paper by Bernard Cohen on "Fundamental Scientific Research and Its Applications" This address should be required reading for every scientist, regardless of his field of interest, for every student contemplating a scientific career and particularly for so-called scientific planners both within and without the government This paper cannot be abstracted but must be read in its entirety It is the best statement of the philosophy and methods of science and research to be published in many years To those interested in any phase of cancer work, research, teaching or administration, the reports of this conference will repay reading and in many instances will serve to stimulate and orient thinking in this field

Camp Counselling An Illustrated Book of Know How for the Camp Worker By A Viola Mitchell, A B, M A, Assistant Professor of Physical Education, The University of Maryland, Baltimore, and Ida B Crawford A B Cloth \$4.25 Pp 388, with illustrations by Ida B Crawford W B Saunders Company 218 W Washington Sq, Philadelphia 5, 7 Crape St, Shaftesbury Ave, London, W C 2, 1950

Much sane advice about health protection as a means of making camping an enjoyable experience is scattered throughout this volume, but it might have been better to bring the points together under a special heading to direct more concentrated attention to them The authors do not ignore the importance of sanitary precautions, proper evaluation of each camper's physical abilities and the desirability of supervision to prevent excessive strains, but their more or less casual mention tends to suggest that they are of negligible importance However, since reference is made to camp physicians and nurses and the book is directed specifically to counselors, prospective counselors and camp directors, lack of extended attention to medical aspects is understandable and may even be considered proper

Presented in four main parts, including the history and objectives of camping, interpretation of the counselor's duties and responsibilities, detailed consideration of camp activities and campcraft and woodcraft, the volume is filled with practical, usable details that should prove invaluable for camp personnel These, combined with extensive reading lists after each chapter as well as a bibliography of camping literature in the back of the book, make it a valuable working tool for all interested in this activity Added evidence of this is found in the list of 16 techniques suggested in the preface as a means of obtaining a thorough background in the subject There also is included a helpful directory of publishers and organizations associated with camping

Hormones in Clinical Practice By H E Aleburgs, M D, Research Associate Department of Endocrinology, and Assistant Professor, Department of Oncology, University of Georgia Augusta Cloth \$5.50 Pp 388, with 57 illustrations Paul B Hoeber Inc., Medical Book Department of Harper & Brothers, 49 E 33rd St, New York 16, 1950

This volume according to the preface is prepared for the "general physician" and "to bring to the busy practitioner precise information on such problems as the conditions for which hormone therapy is necessary or desirable, the choice of preparations, and the dosages in which they should be employed" The author brings to his task a rather extensive experience in laboratory methods applied to endocrine problems, in animal research work, and contact for several years with clinical research work An extensive section of the book presents laboratory diagnostic procedures in adequate detail to serve as a laboratory manual Bibliographic references are numerous throughout the volume A section listing commercial preparations of endocrine materials available in Great Britain and in the United States is somewhat more extensive for the British preparations and displays a certain lack of familiarity with those originating in the United States

The most important aspect of the book, namely, the organization of information about clinical endocrinology, will fall far short of pleasing the busy physician who is not a specialist in endocrinology Too frequently fundamental facts are mentioned

without any apparent connection with the thought of the author or the general concept which the reader is supposed to obtain There is no real description of the way to arrive at a sound clinical diagnosis of most of the endocrine disorders discussed The impression is that this is an incompletely digested and extensive set of notes by a student of endocrinology which have been poorly reduced to the form of an understandable treatise

Included is some questionable therapeutic advice and some that is demonstrably without basis, such as the recommendation that oral thyroid therapy be divided into three doses daily

The American Academy of Orthopaedic Surgeons Instructional Course Lectures Volume V, 1948 Editor Walter P Blount M D Associate Editor Sam W Banks, M D Cloth \$7.50 Pp 330, with illustrations Edwards Brothers, Inc 300 John St, Ann Arbor Mich 1948

This is the fifth volume in a series of instructional course lectures given at the annual meetings of the American Academy of Orthopaedic Surgeons since 1943 The first four volumes were published as individual books without numbers In 1945 there was no meeting and no book was published

Numbering the volumes is perhaps a better plan, since the material covered by the lectures could not be indicated by any one title This fifth volume contains 31 lectures by 32 contributors The content follows no plan of selection as evidenced by lectures on congenital, paralytic and static deformities, on bone tumors, infections and fractures, on surgical anatomy and muscle physiology and vascular complications of orthopedic problems, in addition to plastic and reconstructive surgery of the extremities

Obviously its usefulness is not limited to orthopedics, but this volume, like previous issues, has its major contribution The impressive group of lectures on scoliosis and its treatment with illustrations by Cobb, Irwin Risser and von Lackum make necessary this issue for those interested in the problem especially since these discussions will command more than casual attention This section alone is, for the younger group of orthopedic surgeons, most welcome

For those familiar with the series no single issue can be evaluated by itself The necessary repetition of material by many of those most qualified plus the opportunity for revising past opinions, imparts a changing concept peculiar to a work of this kind A higher standard cannot be set These lectures should be a welcome addition to the library of any surgeon and a necessity for those who wish to keep abreast of the advances in orthopedic surgery

General Chemistry By Harry N Holmes Fifth edition Cloth Price \$4.50 Pp 708 with 100 illustrations The Macmillan Company 60 5th Ave, New York 11, 1949

This excellent introductory textbook by a famous teacher is brought up to date by the inclusion of material on nuclear chemistry, Bronsted's theory of solutions, the newer synthetic drugs, synthetic rubber, synthetic fibers, plastics and petroleum derivatives As in earlier editions, there are copious illustrations, short bibliographies, thought-provoking questions at the end of chapters and short historical resumes Practical and industrial applications are stressed Naturally, inorganic chemistry receives the most space, but the chapters on organic chemistry cover more topics than do chemistry textbooks designed particularly for nurses Physical chemical concepts are employed throughout

A Boy Grows Up By Harry C McKown Second edition Cloth Price \$2.40 Pp 333, with illustrations by Roberta Padlin McGraw Hill Book Company, Inc, 330 W 42d St, New York 18, Aldwych House, Aldwych, London, W C 2 1949

Additional chapters, illustrations and revised bibliography have been added to this edition The volume is primarily designed as an aid to teen age boys in handling problems of adolescence Presentation of most of the material is in anecdotal form with an attempt to place situations and experiences in natural settings Advice, given in an informal manner, and practical suggestions are included to aid the adolescent in deciding intelligently about social, vocational, sexual and other personal problems and activities

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

SWIMMING POOLS AND FORMER POLIOMYELITIS PATIENTS

To the Editor—A patient stated that the local Y M C A barred former poliomyelitis patients from using the swimming pool. Is this action warranted?

E Kane, M D Fond du Lac Wis

ANSWER.—There is no scientific basis for excluding a former poliomyelitis patient from a public swimming pool. The National Conference on Recommended Practices for the Control of Poliomyelitis met in Ann Arbor, Mich., in June 1949, and one of the statements issuing from the conference was that quarantine has not been proved valuable in preventing the spread of the disease. The postpoliomyelitis patient using a public swimming pool constitutes no more of a health hazard than do the other bathers, some of whom may actually be harboring the poliomyelitis virus in their intestinal tracts without being ill. Furthermore, it has never been conclusively shown that swimming in a pool, stream or surf has of itself caused the spread of the disease, beyond the fact that large congregations of persons at a public gathering, whether for swimming or theatre going, provide an increased number of personal contacts, any one of whom may be the carrier. It is unfair to deny the therapeutic benefits and the personal enjoyment that may accrue to any postpoliomyelitis patient who desires to use a public swimming pool.

INFANT FEEDING

To the Editor—What is the latest prevailing opinion on the question of demand versus schedule feeding of babies?

H Hollerman M D New York

ANSWER.—The self demand schedule or better the 'self-regulating' schedule does not mean feeding the infant whenever he whimpers or cries, it means feeding the baby whenever he is really hungry. A normal infant who is on an appropriate and sufficient formula does not get hungry sooner than two hours after his last feeding.

In a recent survey conducted by Dr. Gustave Weinfeld among fifty pediatricians residing in Chicago and vicinity the following statistics were made available. Thirty-five stated that babies should be fed whenever they are hungry, seven said no, sixteen advocated some specified limit of time between feedings, but twenty-two believed that there should not be a specified limit of time between feedings, eight stated that babies should be awakened to be fed, and thirty-two opposed awakening babies for feedings, sixteen indicated that the self-regulating diet should be discarded when the infant was three months of age, but eighteen said no. This represents a small part of the consensus throughout the country.

It is important to individualize. No two infants are alike. Some compulsive perfectionist mothers are made unhappy and confused with the self-regulating schedule as they are incapable of assuming the responsibility of determining the time when their babies need to be fed. In these few cases it is better not to insist on a self-regulating schedule. Most mothers welcome the self-regulating (demand) regimen and are happy to continue it for at least three months, by which time most infants have placed themselves on a reasonable schedule. All mothers must be warned against carrying the principle of indulgence much beyond this period.

HIGH PITCHED TINNITUS

To the Editor—I am 35 years old and in excellent health. One year ago a high pitched ringing tinnitus was first noticed. There has been no evident change in auditory acuity and the tinnitus is mostly masked by regular sounds during the day but is present if consciously listened for. There is no past history of any pathologic condition of the ears or related structures. I would appreciate a discussion of causes and therapy.

M D Nebraska

ANSWER.—A high pitched, ringing tinnitus of one year's duration caused by changes in the organ of Corti should show some diminution in its ability to hear high tones when carefully tested with tuning forks and especially with the audiometer under proper conditions. Such a tinnitus might precede a hearing loss by a considerable period of time and it may be

the first sign of a defect in the basal turn of the cochlea. Eventually, and one year seems an adequate interval there must be in the case of inner ear involvement a diminution in the ability to hear high tones.

In addition to inner ear changes of unknown cause there are drugs which may produce tinnitus of the type described. Of these the salicylates and tobacco rank the highest. Even with these continuous use will result in a high tone hearing loss in many persons. Less common causes such as cerebral arterio-sclerosis and aneurysms of the cerebral vessels, must be diagnosed by careful neurologic methods.

Anemias are not compatible with the description of apparent good health. Neither does there seem to be need to note instances of so-called extrinsic tinnitus, which include sounds perceived by the inner ear and due to intratympanic muscle contracture to muscle sounds produced by swallowing and to abnormal awareness of normal hemic sounds, synchronous with the pulse for these do not correspond with the description given. The significance of these sounds, whether aural or extra-aural in origin, depends mainly on the cause. Most instances of tinnitus of the described variety are due to degenerative changes in the organ of Corti, for which there is no cure.

DISCOLORATION OF HAIR

To the Editor—I understand that sulfur discolors hair after a permanent wave and that resorcinol discolors blond hair especially in the summer. Is there any preparation that causes no discoloration and is safe and effective against seborrhea of the scalp?

M D Colorado

ANSWER.—There is no reason to suspect discoloration of the hair from the use of sulfur after a permanent wave. Resorcinol, however, should be used with caution on blonde hair. In general it is best not to use waving solution when there is sufficient seborrheic dermatitis in the scalp to require treatment. If there is a considerable amount of scaling, it is well to use an ointment with properties that are both keratolytic and antiseptic. The application nightly of a mixture containing salicylic acid, 3 per cent, and either sulfur precipitate or ammoniated mercury, 5 per cent in a water-soluble base is usually effective. If necessary, the concentrations may be increased. The drugs are safe to use except in persons who are hypersensitive to them. When there is little scaling, one may use any of the so-called scalp lotions the formulas for which are furnished in all standard books on dermatology. Some physicians advise against use of preparations containing mercury, sulfur, resorcinol or any similar substance for several days before or after the use of a waving solution.

HYPNOTISM IN TREATMENT OF STAMMERING

To the Editor—I would be glad to know about the use of hypnotism in the treatment of stammering.

D Arcy Prendergast M D Toronto Canada

ANSWER.—Hypnosis may be effective in the treatment of functional speech disorders if the stammering or stuttering is due to emotional inhibition. The treatment of stammering depends partly on helping the patient understand the deeper emotional problems which originally initiated the difficulty. Rational therapy involves rebuilding of self confidence. In the first part of the treatment the patient must be convinced that because of his experiences, he has come to overemphasize the speech function. When he admits that he has a speech problem he will be easier to treat by hypnosis. The trance state may now be induced and atonicity may be produced by suggestion. Suggestions may be made to the effect that the muscles of the face, mouth and throat will become relaxed. He is impressed with the fact that he can place himself in a calm and relaxed state and may respond to these suggestions by talking in a normal manner. Then it is impressed on the patient that his speech shows no evidence of stammering because he is calm and relaxed. Further hypnotic suggestion can then be made to the effect that he visualizes himself in persons he likes and that in his relaxed state he is able to talk easily to them in his phantasy. The next phantasy is to have him talk with persons whom he

tricles of the heart was preserved in separate containers. Samples of the soapy material behind the placenta and of the amniotic fluid were also preserved. Immediately after the autopsy a search was made of the office where the death had occurred and two bottles were found which contained soapy material that had an odor of iodoform.

The paste which was confiscated from the abortionist's office was subjected to chemical and spectrographic analysis as were the amniotic fluid and the two samples of blood from the heart. The material from behind the placenta was analyzed only by the spectrographic method. It was learned from the druggist who had compounded the paste that it consisted of medicinal soft soap U S P, to which had been added some iodine. Results of the analyses for iodine⁸ were as follows:

Blood from left atrium	2 700 0 micrograms per 100 cc. of sample
Blood from right atrium	3 745 0 micrograms per 100 cc. of sample
Amniotic fluid	47 025 0 micrograms per 100 cc. of sample
Paste from office	157 500 0 micrograms per 100 cc. of sample

The iodine in the abortifacient permitted the identification and tracing of the substance by chemical means. The results of the analyses for iodine made it possible to calculate the amount of soapy abortifacient in the samples of blood which were obtained at autopsy.

Material	Iodine Mg /100 Cc	Total Sample Obtained
Paste from office	157.5	
Blood from right atrium	3 745	210 cc.
Blood from left atrium	2 700	40 cc.

Since 100 cc of the undiluted abortifacient contained 157 5 mg of iodine, 375 mg of iodine would be present in 23 cc of abortifacient. Therefore in the 210 cc of blood from the right atrium there were 483 cc of abortifacient. Similarly,



Fig 1 (case 4)—The uterus has been opened by incisions extending upward along each side. The hemorrhagic tract made by the abortionist's cannula and the hemorrhagic and necrotic area below the lower edge of the placenta (where the abortifacient had been deposited) are visible.

2.3 mg of iodine would represent the amount in 11 cc of the sample was made by Arthur C. Connor

abortifacient was present in the two samples of blood alone and the total injected had doubtless been more than that.

The spectrographic examination of the paste indicated that minute amounts of certain metals were present as contaminants (fig 3). The presence of the same contaminating metals in the material from the uterus in greater dilution than they



Fig 2 (case 4)—Destruction of blood in large vessel of myometrium. Death occurred quickly after injection of a soapy abortifacient into the uterus. This section was stained with aniline (color index 715) which has an affinity for hemoglobin (Dunn R C Arch Path 41: 676 [June] 1946) so that the amorphous dark mass is identified as hemolyzed blood. The vacuolated appearance of this material is characteristic for blood that has been altered by soapy abortifacients.⁹

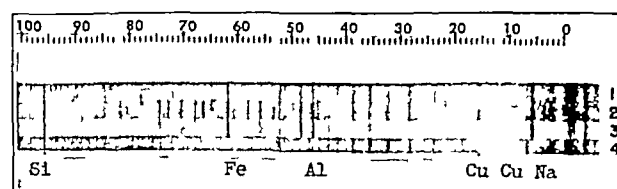


Fig 3 (case 4)—Spectrum 1 (amniotic fluid) spectrum 2 (fluid from behind placenta) and spectrum 3 (material from abortionist's office) have been compared with that of normal amniotic fluid (not illustrated). The lines of several elements notably those of aluminum (at 46 and 48 on the scale) were absent from the normal spectrum. This fact supports the conclusion that the fluids from the deceased patient had been contaminated with a material like the abortifacient. There is also a strong presumption in view of the progressive decrease in the intensities of the sodium, aluminum and silicon lines from spectrum 3 to spectrum 2 and then to spectrum 1 that the abortifacient introduced directly behind the placenta was diluted by fluid at this point and that further dilution was effected by the amniotic fluid. Spectrum 4 is a graphite control (spectrography by Jacob Cholak).

had been found in the original paste, was further evidence that the material found in the uterus had been taken from the jar of paste found in the abortionist's office. The abortifacient had been injected into the uterus immediately prior to death in spite of a statement to the contrary by the physician in whose office she died. This opinion was supported by the following facts: 1. There was coagulation necrosis at the site of the material behind the placenta but there was no associated inflam-

vasated blood had not been carried out of the alveoli and into the bronchi. 3 There were hemorrhages within the brain, without associated edema or other reaction. This was interpreted as indicating that the patient could not have traveled to the office where she died after the abortifacient had been injected into her uterus elsewhere, the brain injury would have interfered with her consciousness or, at least, her locomotion. There were witnesses who had seen the victim, in no apparent distress, in the abortionist's waiting room immediately before her death.

Tests were made to determine the effects of the paste from the abortionist's office on whole blood. It was found that as little as 0.03 cc of the paste caused complete hemolysis of 1 cc of ovalated blood in 20 seconds and that 0.1 cc of the paste caused immediate hemolysis of a similar amount of blood. Medicinal soft soap caused similar effects. Within a few seconds after hemolysis was complete, a flocculent precipitate was noted in each of the treated samples of blood.

The hemorrhage gradually increased until the sixth day of the visit to the abortionist when she was readmitted to the hospital to have dilatation and curettage performed. A piece of necrotic placental tissue was obtained. Subsequent recovery of the patient was uneventful.

CASE 6—A white woman 25 years of age visited an abortionist nine weeks after her last menstrual period and an abortifacient paste was injected into the uterus. A bloody discharge began immediately, and the next day the patient had periodic pains in the lower portion of her abdomen. The following day the products of conception were removed manually in a hospital, and one day later diffuse peritonitis was present. Antibiotic and sulfonamide therapy led to uneventful recovery.

CASE 7—A white woman 21 years of age visited an abortionist nine weeks after her last menstrual period. An intrauterine injection of a soap solution was followed by severe cramps in the lower part of the abdomen and pronounced vaginal bleeding. She was admitted to the hospital the next

TABLE 1—Experiments Relating to Abortifacient Material in Case 4

Rabbit	Substance Administered	Dosage (Cc)	Means	Response	Outcome	Autopsy
5	Material from abortionist's office	0.2	I V	Convulsions	Died 2 min 45 sec	Patchy hemorrhages in lungs
4	Material from abortionist's office	0.2	I V	Convulsions	Died 4 min 35 sec	Patchy hemorrhages in lungs
3	Material from abortionist's office	0.9	I V	Convulsions	Died 1 min 35 sec	Patchy hemorrhages in lungs
1	Material from abortionist's office	0.2 in 0.8 saline sol	I V	Convulsions	Died 5½ min	Bloody fluid in trachea, hemorrhages in lungs
2	Material from behind placenta	0.2	I V	0	Killed 20 min after treatment	
7, 8	Iodine solution (157.5 mg /100 cc)	10 each	I V	0	0	Petechiae of lungs
9	Medicinal soft soap	0.5	I V	Convulsions	Died 8 min	Hemorrhages in lungs
10	Medicinal soft soap	0.7	I V	Convulsions	Died 3 min	Hemorrhages in lungs
6	Material from abortionist's office	1	Subcutaneous	Ulceration down to muscle	Killed 9 days	Sections of ulcer showed no evidence of altered hemoglobin, foreign body giant cells and foam cells numerous, extensive necrosis and inflammatory exudate
11	Medicinal soft soap	1	Subcutaneous	Ulceration down to muscle	Killed 9 days	Sections of ulcer showed no evidence of altered hemoglobin, foreign body giant cell and foam cells numerous, extensive necrosis and inflammatory exudate

TABLE 2—Experiments with Abortifacient Paste* "UtaJel"

Rabbit	Substance	Gm per Kg Body Weight	Means	Response	Outcome	Autopsy
A 801	Whole paste	0.30	I V	Blood from nose	Died 3 min	Hemorrhages in lungs
A 802	Whole paste	0.10	I V	Blood from nose	Died 5 min	Hemorrhages in lungs
A 813	Whole paste	0.07	I V	None	Died 3 min	Hemorrhages in lungs
A 644	Whole paste	0.16	Intraperitoneally	None	Died 8 to 16 hr later	Hemorrhages in lungs, pneumonia, peritonitis
A 806	Whole paste	0.24	Uterine cavity	Inflammation of vaginal mucosa 24 hr later	Living and well	No autopsy
A 812	Soap derived from paste	0.42	I V	None	Died 2.5 min	No lesions
A 811	Soap derived from paste	0.27	I V	None	Died 1 min	No lesions
A 647	Oil from paste	0.07	I V	Blood from nose	Died 6 min	Hemorrhages in lungs
A 645	Pure white pine oil	0.22	I V	None	Died 6.5 min	Hemorrhages in lungs

* These experiments were made by Drs. Joseph T. Walker and Frank R. Dutra.

CASES WITHOUT FATALITY

CASE 5—A white woman 23 years of age visited an abortionist three months after her last menstrual period. Yellow fluid was injected into the uterus and a gauze pack was placed in the vagina. That evening the patient had an episode of severe coughing and blood began to flow from the uterus. Bloody discharge continued for twelve days, during which there were also periods of profuse hemorrhage. On the twelfth day after that of the injection the fetus was passed, followed in four days by the placenta. On the twenty-first day after that of the injection the patient was admitted to the hospital with severe bloody vaginal discharge and signs of generalized peritonitis. The uterus was enlarged to twice normal. The hemoglobin content of the blood was 5 Gm. per hundred cubic centimeters, and the leukocyte count was 19,200 per cubic millimeter. Penicillin, ergot and blood transfusions were given, and the patient's condition improved. On the thirtieth day after the visit to the abortionist the bloody discharge stopped, and two days later she was discharged. A bloody discharge after renewal was followed by renewal.

day with pelvic peritonitis. The hemoglobin in the blood measured 10 Gm per 100 cubic centimeters, and the leukocyte count was 16,350 per cubic millimeter. She was given ergonovine maleate and sulfadiazine, she recovered and was discharged from the hospital ten days later.

LABORATORY TESTS

Experiments have been conducted to determine the effects on rabbits of the abortifacient paste described in case 4 (table 1). Intravenous administration of relatively small amounts of the paste killed the animals promptly, and focal hemorrhages were found in their lungs after death. One animal that died five and one half minutes after such an injection had bloody fluid in the trachea and bronchi in addition to the hemorrhages in the lungs.

effect after intravenous injection. Small amounts of medicinal soft soap were highly toxic. Subcutaneous injection of the abortifacient led to necrosis of the skin, subcutaneous tissues and subjacent skeletal muscles. This was similar to the necrosis of the wall of the uterus which was observed in case 1.

A series of experiments has been made with another abortifacient paste *Utrajel*⁹ analyses¹⁰ of which have revealed the following characteristics:

Pine oil	8.1 to 9.0
Pine oil	10.3 to 25.7 per cent
Soap (potassium ricinolate)	35.1 to 47.3 per cent
Iodine	1.1 to 1.6 per cent
Water	31.0 to 44.5 per cent

It was demonstrated (table 2) that the abortifacient paste administered intravenously to rabbits in doses as low as 0.07 Gm per kilogram of the animal's body weight was fatal. Soap obtained by fractionation of the abortifacient also killed both rabbits to which it was administered intravenously, the lowest dose tested being 0.42 Gm per kilogram of body weight. The oil derived from the abortifacient also was highly toxic when administered intravenously, as indicated by the prompt death of 1 rabbit which received only 0.07 Gm of the substance per kilogram of body weight. Intravenous administration of potassium ion in amounts as great as were contained in lethal doses of the abortifacient produced no effects on 2 rabbits.

It should also be noted that the intravenous injection of the compound killed the animals in a few minutes, and that this was sufficient time for the development of pulmonary hemorrhages and, in some, for blood to appear at the nares before death.

COMMENT

The incidence of death from induced abortion in one city in the United States is shown in the data of Sangmeister.¹¹ In Philadelphia between 1931 and 1940 there were 450 reported deaths from abortion, 329 of which unequivocally resulted from criminally induced abortions. Thus the number of deaths following criminal abortions was more than two and one-half times the number of deaths after spontaneous abortions.

The use of intrauterine pastes by criminal abortionists in the United States is believed to be widespread. Two factors which are probably important in the choice of pastes as a means of performing criminal abortions are the ease with which the pastes can be administered and the fact that in most instances complications of the abortion will not begin until the patient has left the office where the injection was made.

The incidence of sudden death shortly after the injection of an intrauterine paste is probably small, but the incidence of serious complications, beginning some hours after the injection and continuing for varying periods up to months following the injection, not infrequently ending in death, must be fairly high. A large proportion of women entering hospitals with incomplete abortions or infections subsequent to abortion are

found by careful questioning to be victims of criminal abortionists. The possibility of obtaining a history of the injection of an abortifacient paste would doubtless be greatly increased in such cases if all patients with incomplete abortions or postabortal infections were questioned on this specific possibility.

Occasionally it might be possible to make the diagnosis objectively in patients presenting themselves shortly after the injection had been made, since the odor of the abortifacient might be noted in the vaginal discharge. Several patients who have had abortions performed by the injection of intrauterine pastes have stated that after leaving the office where the injection was made a strong odor was present, and one stated this was so pronounced that she "was ashamed to get on the streetcar to go home." The odor of iodoform in the case of the woman who died on the treatment table of the abortionist was of considerable help in establishing the diagnosis at the time of the autopsy. This odor also made it possible for us to recognize the paste and the instruments which had been used, when the office of the abortionist was searched after the autopsy.

The soaps in these abortifacients are irritating and are capable of producing necrosis of tissues; they have been responsible for necrosis of the uterine wall in several instances and may have been the cause of peritonitis, which has so frequently followed the use of soapy pastes. Experimental observations on animals have shown that neutral soaps will lead to the development of necrosis and abscess if injected subcutaneously and that small amounts given intravenously will cause prompt death. These soaps are capable of producing rapid hemolysis *in vitro*, and complete hemolysis has been reported in human poisoning following injection of an intrauterine paste.⁵

Other ingredients in some of the pastes may also be highly toxic, thus small amounts of the pine oil in the abortifacient analyzed were found to be lethal to rabbits following their intravenous injection. It has also been demonstrated that the amount of potassium ion found in one paste and the amount of iodine found in another did not injure rabbits when they were injected intravenously in quantities equivalent to the amounts found in lethal doses of the respective abortifacients.

Complications which follow the use of intrauterine pastes as abortifacients include prompt death from intravascular injection (paste intoxication and embolism), severe acute or delayed hemorrhages, necrosis and perforation of uterus, local or widespread inflammatory disease (metritis, salpingitis and peritonitis) and delayed effects such as sterility and fibrous peritoneal adhesions.

SUMMARY

1 The dangers of criminal abortion by the use of intrauterine pastes are reviewed, and 7 cases with 4 deaths are reported.

2 Deaths in the cases investigated have resulted from necrosis of the uterine wall with peritonitis, from diffuse peritonitis without perforation of the uterus and in 2 cases from paste embolism. In 1 of the 2 last mentioned cases there was a patent foramen ovale which predisposed to paradoxical embolism.

3 The evidence that the common lethal agent in demonstrate the pastes is the soap.

⁹ The company which manufactured and distributed this product ceased to exist after legal actions which were initiated under the Federal Food Drug and Cosmetic Act resulted in a permanent injunction against the introduction of this product into interstate commerce. (Action to enjoin and restrain the interstate shipment of Utrajel. Notices of Judgment. *Mo. Sup. Ct. 11 J. Sur. & Cosm. Act. Drugs and Devices* 1943 1931 to 1940 Inclusive. *Am. J. Obst. & Gynec.* 46:735 (Nov.)

stopping chronic anticoagulant therapy became more clearcut. A third patient (case 7) was treated uneventfully with dicumarol[®] for eleven months. Because of the need for several dental extractions, by her local dentist, anticoagulation was stopped, the prothrombin time was returned to normal and three teeth were removed. Twelve days later she suffered the sudden onset of hemiplegia and unconsciousness and died the next day at another hospital.

There have been two embolic episodes occurring during treatment. One patient (case 9) experienced a small pulmonary embolus eight months after administration of dicumarol[®] was started, and another woman (case 11) suffered a probable small renal embolus after five months of continuous anticoagulation.

At present there are 11 patients who are receiving continuous anticoagulant therapy with dicumarol[®]. The psychologic reactions of these persons have been favorable. Cooperation has been excellent, especially with regard to their faithfulness in reporting for their prothrombin tests. In particular, those who had previously experienced repeated emboli achieved a considerable feeling of confidence and optimism from the protection afforded by the anticoagulants, in contrast to the previous fatalistic outlook toward the possibility of further potentially disabling emboli. It should be emphasized that they have carried out their usual daily activities in the home and at work throughout the city.

COMMENT

Only between 4 and 8 per cent of the great numbers of patients with rheumatic heart disease and mitral stenosis ever experience emboli. Although there is no clinical or laboratory means of distinguishing those persons in whom emboli will occur, the advent of auricular fibrillation seems to bring with it an increased chance for mural thrombus formation and peripheral embolism. Other than this arrhythmia the underlying mechanism for the sudden occurrence of intracardiac thrombosis or embolism is not apparent. Furthermore, the onset of fibrillation may precede by months and frequently many years the appearance of embolic phenomena. It thus becomes clear that the mere presence of auricular fibrillation or rheumatic mitral stenosis does not justify by itself the initiation of a long term program of anticoagulants.

In a number of instances only one embolus is produced and not infrequently is followed by months and years of uneventful cardiovascular life. On the other hand, a perusal of the accompanying table confirms the general clinical impression as well as previous reports¹¹ that there are occasional patients who suffer multiple embolic episodes. Within a period of a few weeks several embolic arterial occlusions may quickly follow in succession. Persons with this propensity to embolism form the selected group in whom long term anticoagulant therapy may offer significant aid. On the other hand, it must be remembered that it is impossible to predict accurately which patients will prove to be the victims of recurrent embolism.

It should be emphasized that if the clotting tendency of the individual patient as represented by local intracardiac or general blood coagulation factors is quanti-

tatively greater than the effect of dicumarol[®] on the processes of coagulation, it is possible for intravascular clotting to proceed despite dicumarol[®] or heparin therapy. These considerations together with the possibility of fragmentation of mural thrombi already present before anticoagulants were given may explain why two instances of recurrent emboli occurred in this series during the period of treatment.

At the inauguration of this study no guide was available as to what constituted the optimum or minimum period of treatment. Because of certain restrictions imposed by this continuous anticoagulant routine it was desirable that the period of treatment be as short as possible. Thus, initially an arbitrary decision was made to treat the majority of patients for a period of three to six months and to stop after that period if the clinical situation was satisfactory. However, 4 patients had suffered so many or such serious arterial occlusions that it was felt from the outset that an indefinite period of dicumarol[®] administration was indicated. Furthermore, in the cases in which emboli occurred shortly after the cessation of the first course of anticoagulation it has been decided to continue the second period of treatment on an indefinite basis.

Careful control of administration of anticoagulants by the appropriate laboratory test is the essence of safe and adequate therapy. It is agreed by most authorities experienced in the use of dicumarol[®] that continuous administration of it to ambulatory patients is feasible and practical in selected instances. However, inasmuch as occasional fatalities due to uncontrollable hemorrhage are attributed to dicumarol[®], its administration is not without risk and a clear indication should be present when it is employed. It is worthy of mention that actually there has been less bleeding in this ambulatory group of patients continuously maintained on dicumarol[®] therapy than is usually encountered in the average two to eight weeks of such therapy in the hospital for venous or coronary thrombotic disease.¹²

SUMMARY

Eighteen patients, the majority with rheumatic heart disease and auricular fibrillation, were selected because they had experienced one or more emboli from intracardiac sources and have been treated for periods as long as two years with continuous dicumarol[®] anticoagulant therapy, while ambulatory, in attempts at prevention of recurrent emboli. Although it is obviously impossible to establish the fact that recurrent embolism was significantly reduced by treatment of these patients, their clinical course during and subsequent to therapy and a comparison with their previous course strongly suggest that a favorable effect was produced. Rheumatic heart disease was predominant among the patients in this study. However, it seems reasonable to believe that this principle of therapy may be applied to persons with other forms of heart disease (e. g., arteriosclerotic disease) in whom recurrent emboli originate from intracardiac thrombi.

Continuous dicumarol[®] therapy of ambulatory patients is feasible and safe provided there is careful supervision and adequate laboratory control. This group of patients has received dicumarol[®] for a combined total of more than two hundred months without untoward complications.

¹¹ Lewis, T. The Value of Quinidine in Cases of Auricular Fibrillation and Methods of Studying the Clinical Reaction. *Am. J. M. Sc.* 143:781, 1922. Fabr. G. The Treatment of Thrombotic Disease. *Sokolow* *et al.* *J. A. M. A.* 111:1226, (Dec. 17) 1933. Gart ⁶⁴

CLINICAL TRIAL OF BANTHINE IN 100
PATIENTS WITH PEPTIC ULCERKEITH S GRIMSON M D
C KEITH LYONS M D
and
ROBERT J REEVES M D
Durham, N C

Banthine is a quaternary ammonium compound which Cusick and Robinson¹ prepared by quaternization with methylchloride of beta-diethylaminoethyl xanthene-9-carboxylate hydrochloride. Lehmann and Knoefel² reported that it had a decided spasmolytic action. It was one of many compounds furnished³ in February 1948 for study of effects on functions of viscera or organs supplied by the autonomic nervous system.

Each of these several drugs was studied in animal experiments. One, SC-1950, was first tested in patients and found capable of blocking both divisions of the autonomic nervous system,⁴ evidently by a ganglionic blocking action similar to that of tetraethylammonium chloride. Although it reduced gastrointestinal motility and diminished gastric secretions, it also produced disabling hypotension and was not effective orally. The other, SC-1703, which in animal experiments primarily depressed intestinal motility and only in larger doses interfered with vasomotor responses, Chittum, Longino, Metcalf and Grimson⁵ first tested in patients in January of 1949. Because it causes prolonged depression of gastrointestinal motility and usually reduction of volume and acidity of secretions from the stomach and because it is effective orally this drug was started in clinical trial in May 1949 as a treatment of peptic ulcer.

Results of testing and a preliminary statement of clinical trial were published (Longino, Grimson, Chittum and Metcalf⁷) and presented as a scientific exhibit before the Southern Medical Association, Cincinnati, Nov. 14 to 17, 1949. Kern and Almy⁸ described pronounced and prolonged depression of peristalsis of the colon with use of similar amounts of this drug in patients. Studies by M. I. Grossman, A. C. Ivy, L. R. Dragstedt, W. P. Chapman, E. Levin, M. E. Dailey, A. Winkelstein, S. G. Wolf, H. Shay, C. Dennis, O. H. Wangenstein and several others have confirmed effectiveness of this agent and thus encouraged us to report our experiences during twelve months of therapeutic trial.

SC-1703 was first furnished as beta-diethylaminoethyl xanthene-9-carboxylate methachloride. This salt, though

hygroscopic, was used during the early stages of testing and clinical trial in capsule form or as a freshly prepared solution for intravenous or intramuscular injection. Our reports⁹ were based on use of the chloride. In November 1949, however, beta-diethylaminoethyl xanthene-9-carboxylate methobromide SC-2910, a stable nonhygroscopic salt, was prepared and furnished in tablet form and in dry ampules ready to be dissolved in sterile water for parenteral administration. This salt has been designated banthine bromide. Each patient receiving treatment with the chloride was then supplied with the bromide and therapeutic trial has since employed the bromide.

Studies comparing effectiveness of these two salts and describing details of their pharmacologic action are reported by Hambourger, Cook, Winbury and Freese.¹⁰ Comparison of action of these two salts in patients (Lyons and Grimson¹¹) has borne out the conclusion that the bromide is only slightly less effective than the chloride, a difference explainable on the basis of the greater molecular weight of the banthine bromide, 421, as compared with that of the banthine chloride, 376, the former therefore having less of the banthine cation in each 50 or 100 mg. dose.

METHOD OF CLINICAL TRIAL

The amount of banthine administered as single doses during test experiments varied from a few milligrams to 200. As a result of trial 100 mg. has been chosen as the optimum dose, though amounts of 50 or 75 mg. are used at times for a less complete effect. Duration of depression of motility and usually secretions of the stomach ranged from two to six hours. Therefore the optimum interval between doses was selected as four hours. However, most patients have evidenced satisfactory improvement while taking the drug every six hours. The usual schedule employed in treating patients with ulcer has been 100 mg. every six hours day and night, or 400 mg. daily. Need for the night dose was emphasized because overnight aspirations of gastric juice obtained from patients before treatment with few exceptions evidenced large volume and large amount of free hydrochloric acid.

Most of the patients with ulcer were limiting their activity, restricting diet and using antacids, and a few were taking atropine preparations before their trial of banthine. During treatment they were advised to discontinue use of antacids and all other medicaments. With few exceptions they were encouraged gradually to return to work and resume a normal diet during the first week or two of treatment. If prompt relief of ulcer-like pain did not occur during the first few days patients were advised to continue with some restriction of diet during several weeks and to increase daily intake of banthine to 600 mg., taking 100 mg. every four hours day and night.

Roentgenologic examinations of the stomach and duodenum were made regularly two or three weeks after the start of treatment, again at six weeks and subsequently every few months. When roentgenograms and fluoroscopic examination revealed evidence of decrease of deformity or healing after three weeks or more often at six or eight weeks patients were permitted to decrease the amount of banthine from the

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therapeutic program of 400 to 600 mg a day to 200 mg a day, taking 50 mg every six hours as a minimum maintenance dose and continuing this indefinitely. In a few patients who were receiving this maintenance dose of 200 mg a day pain again developed during periods of emotional strain such as excessive business worries or illness and in a very few, nausea and vomiting. These patients were promptly instructed to resume the full therapeutic dose, rest in bed, limit their diet and take antacids. They usually responded to this treatment in a few days, though an occasional patient was relieved only after several weeks. Because of these occasional recurrences each patient is now instructed to resume therapeutic doses of banthine as a prophylactic measure against recurrence when conditions of tension, strain or illness develop. The physiologic and pharmacologic observations leading to the adoption of the foregoing program are reported and further outlined editorially¹⁻⁵.

TABLE 1—Incidence of Symptoms Among Patients

	Pain		Vomiting		Hemorrhage	
	Moderate	Intractable	Occasional	Persistent	Minor	Major
A 38 Patients without conventional indications for surgery—Duodenal ulcer						
Before banthine	18	16	4	11	0	4
With banthine	4*	0	0	2†	0	0
B 7 Patients with conventional indications for surgery—Stoma ulcer						
Before banthine	3	2	1	2	1	0
With banthine ‡	1§	0	0	0	0	0
C 55 Patients with conventional indications for surgery—Duodenal ulcer						
Before banthine	6	27	22	24	14	8
With banthine	11¶	0	0	5#	0	0

* Single episode of mild recurrence of pain lasting three to fourteen days
† Occasional vomiting for three to five days with recurrence of pain
‡ Omitting 2 patients who discontinued banthine therapy, one after resection of carcinoma of rectum and the other after roentgen ray treatment of retroperitoneal sarcoma
§ Recurrence of pain for seven days
|| Omitting 5 patients requiring surgical operation
¶ Single episode of recurrence of pain lasting seven to forty seven days
Occasional vomiting with recurrence of pain

CLINICAL TRIAL

The first 100 patients with a diagnosis of peptic ulcer established clinically and roentgenologically were started on treatment using banthine between May 1949 and February 1950. It is recognized that results during the first twelve months cannot be interpreted in terms of lasting effect and that this study merits reporting only because of remarkable initial effects. Study during several years will be required before the method of therapy for ulcer and change of indications for surgical treatment can be evaluated. However, as a result of these early encouraging results general distribution of banthine is planned in order that physicians may now use it. Each of the 100 patients had symptoms of active ulcer at the time of start of treatment. Six had jejunal ulcer following gastroenterostomy, 1 had a stoma ulcer after a subtotal gastric resection, 2 had gastric ulcer, 2 channel ulcer and the remainder duodenal ulcer.

One of our main interests in this study is reevaluation of indications for surgery. Therefore the symptoms, signs and observations in each patient were

carefully reviewed before treatment to determine whether by conventional standards vagotomy with gastroenterostomy or subtotal resection would ordinarily be advised.

Duodenal Ulcer Without Indications for Surgery—Thirty-eight patients with duodenal ulcer did not meet conventional indications for surgery. The location of the ulcer was base of the bulb in 10, midbulb in 24, distal bulb in 1 and postbulbar in 1. Age of patients ranged from 27 to 79 years and averaged 44. Duration of symptoms ranged from 1 to 40 years and averaged 10. Type of pain, incidence of vomiting and occurrence of hemorrhage in this group are outlined in table 1. Contrasting the occurrence of these symptoms during the years before banthine therapy with the incidence during the months of treatment using the drug. Severe intermittent and incapacitating pain occurred regularly day and night in spite of conventional treatment in 16 patients and persistent or intractable pain in 4 patients before use of banthine. Afterward with continuing treatment severe or intractable pain did not occur. However 5 of these 38 patients described occasional mild and intermittent ulcer-like pain gradually diminishing during the first fourteen to one hundred and three days of treatment and then subsiding. A sixth patient at ninety-six days has not yet experienced complete relief. After complete relief of pain 4 of the patients in this group had single recurrences lasting three, five, thirteen and fourteen days. In each the pain is now relieved. Eleven patients occasionally experienced vomiting before they began to take banthine. Two of the 4 with minor recurrences vomited during their period of pain. Two patients had described one or more episodes of tarry stools and another 2 both tarry stools and hematemesis before institution of banthine therapy. Bleeding has not recurred during treatment. Of these 38 patients 34 now take a regular diet and 4 are advised at present to limit their diet until further roentgenologic evidence of healing is obtained. Except during the four recurrences described, no antacid or other form of medication has been or is employed.

Stoma Ulcer with Indications for Vagotomy—Seven patients with stoma ulcer met indications for vagotomy. Their symptoms are presented in table 1. Stoma ulcer followed gastrojejunostomy in 6 and subtotal gastric resection in one. Age of patients ranged from 25 to 73 years and averaged 55. Time since the first symptoms of ulcer ranged from thirteen to forty-five years and averaged twenty-five. In 6 patients symptoms have not recurred. The seventh experienced a recurrence of mild pain lasting seven days and then subsiding. Six of these patients had had one or more major hemorrhages prior to banthine therapy, and none have bled during treatment. However, 2 discontinued regular use of the drug after a few months, 1 (aged 73) after resection of a carcinoma of the rectum and the other (aged 63) after roentgen ray therapy over the stomach for a retroperitoneal sarcoma. Each of these 7 patients is now taking an unrestricted diet and not taking antacids.

Ulcer with Indications for Surgery—Fifty-five patients met conventional conservative indications for surgery. The location of the ulcer was base of the bulb in 13, midbulb in 30, distal bulb in 2, postbulbar in 6, channel in 2, prepyloric in 1 and juxtaesophageal in 1. Age of patients ranged from 24 to 67 years, and averaged 46. Duration of symptoms ranged from four to thirty-five years, and averaged 14. Symptoms before and during banthine treatment are illustrated in table 1. C

Surgical operation was subsequently performed for 5 patients. Of these, 4 were treated by vagotomy-gastroenterostomy after five, six, six and ten weeks of banthine therapy and 1 by subtotal gastric resection after six weeks of therapy. While taking the drug 4 of the 5 had been completely relieved of pain and 1 partially relieved.

In 2 of the 5 patients symptoms leading to operation were occurrence of a sensation of epigastric fullness associated with sour or malodorous eructations and occurrence of nausea. During operation it was evident that there had been healed ulcers.

intravascular pressure and its increased gradient, hyper-tension are the dominating factors in the production of hyperplastic arteriosclerosis and that it represents a biologic progression of the normal hyperplasia of the intima and of the elastica that begins at birth. The following equation may thus be formulated

$$\text{arteriosclerosis} = \text{intra-arterial pressure} \times \text{time}$$

The postmortem diagnosis of arteriosclerosis is made when gross atheroma is manifest, a convention that dates largely from Jones.²² It is clear, however, that this limitation is not justified since arteriosclerosis may occur without lipid infiltration. Moritz and Oldt²⁰ have definitely shown that the lesions of arteriosclerosis associated with hypertensive disease are the same as those associated with normal pressures except in degree.

It is evident that the third law of Thoma,⁵⁰ namely, that the thickness of the vessel wall is dependent on the difference between the intravascular and extravascular pressures, which he applied to the embryonal development of arteries, is perfectly applicable to post-membranal growth as well.

There is another observation²³ that helps appreciably to integrate this dynamic concept of arteriosclerosis. I refer to a capillary sclerosis that is almost invariably associated with arteriosclerosis of the main supplying vessel of the organ and especially with hypertension. Capillary sclerosis can best be observed when capillaries are bunched together as in the glomeruli, the islands of Langerhans, the alveolar walls of the lung and the sinusoids of the liver lobule when the organs in which these structures occur are subject to increased intravascular pressure. I have shown that, associated with the arteriosclerosis or phlebosclerosis of the main vessel, the capillaries undergo sclerosis, as evidenced by thickening of their walls, fibrosis or hyalinization or both and dilatation of the lumens. The same association holds for the spleen in hypertension of the portal circulation,⁵¹ but the capillary sclerosis in this organ is represented only by fibrosis of the splenic cords because the splenic capillaries are represented by delicate labyrinthine spaces within these cords. I have employed the terms arteriocapillary and venocapillary sclerosis to denote the summation of these lesions. They contribute largely to the diminution of function of these organs.

SUMMARY

Hyperplastic arteriosclerosis is a process that begins at birth. Evidence has been submitted that the dominant factor in its genesis is the normal intravascular tension and its increased gradient, hypertension. In this concept functional change precedes anatomic change. It is thus impossible to tell when normal aging ends and disease begins. Inasmuch as intravascular pressure cannot be escaped, it is an inevitable destiny of animals that possess a vascular system such as the human one and who live long enough. It is therefore reversible, except under most unusual conditions. This accounts for its universality in all persons, in all climates in all conditions of sustenance and in all ages, both ancient and modern. The process may be modified by certain factors, notably the composition of

the blood, perivascular stresses and fixations and the vascular supply of the blood vessels and in all probability by other contributing factors that remain to be determined. Its universality does not imply that clinical arteriosclerosis and anatomic arteriosclerosis are equivalent. Arteriosclerosis causes disease only when the circulation of a vital organ is impaired. Atherosclerosis cannot be considered as synonymous with arteriosclerosis since it is not primary and lacks the consistent morphologic and/or pathogenetic background of hyperplastic arteriosclerosis. At best it is only a part or a facultative lesion of arteriosclerosis.

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CRIMINAL ABORTIONS INDUCED BY INTRAUTERINE PASTES

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The injection of pastes into the uterus as a method of inducing therapeutic abortions was described by Leunbach¹ in 1931. Over a period of three years he had treated 100 patients by this method, and in only 4 instances was subsequent curettage required to complete the abortion. In addition, Leunbach recommended the method for use at the University Clinic in Moscow. Among the first 53 patients to submit to the use of the paste in the Moscow Clinic, 22 had complications necessitating curettage.¹ Leunbach described his paste as a superfatted soap to which iodine, potassium iodide and thymol were added as "antiseptic components." Several other similar products quickly appeared in Europe, and numerous reports of deaths following the use of these intrauterine pastes began to appear in the European medical literature shortly after their use was described. Sachs² published an analytic survey of 24 deaths following the use of abortifacient pastes. In several of the cases, the odor of aromatic oils was noted in the tissues of the lungs and brain, as well as in the uterus. Brack³ reported details of 2 deaths which resulted from salve embolism. Immediately after the introduction of the material into the uterus each of the two women became extremely dyspneic and died within a few minutes. Postmortem examinations revealed pulmonary edema, and multiple capillaries of the alveolar walls in the lungs were occluded by droplets of paste.

Muller-Hess and Hallermann⁴ made postmortem examinations of the bodies of several women who died after abortions induced by pastes. Their examinations led them to conclude that the use of one patient paste for the induction of abortion figures being 40, 50, they recommended that these abortifacient with a severe

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Intrauterine pastes became commercially available in the United States about 1930. The ingredient common to all is soft soap, in addition to which some contain small quantities of iodine, potassium iodide and various aromatic substances (pine oil, myrrh and thymol).

Details of 9 instances in which abortions were attempted or accomplished by intrauterine administration of pastes, followed by some complication in each case and by death in 3 instances, were reported by Weilerstein⁵. In 3 cases the paste had been injected into maternal blood vessels, and 2 of these women died. The death of a third woman was due to necrosis of the wall of the uterus and abscesses in the pelvis. Weilerstein made the apt comment "The use of pastes involves every danger which is inherent in a surgical invasion of the uterine cavity plus the added risks of introduction of a foreign body which is lost to the control of the operator when once introduced."

A death which followed necrosis of the wall of the uterus, with perforation, was reported by Straus and De Nosaquo⁶. In the necrotic portion of the wall of the uterus, they found masses of granular vacuolated material. Their experiments revealed that abortifacient paste converted whole blood to similar granular masses *in vitro*, and it was concluded that these masses resulted from an alteration of the blood by the paste.

REPORT OF CASES

Medicolegal investigations and autopsies have been made by us in 4 fatalities following attempted abortions by the intrauterine administration of soapy substances. In another case which we have investigated, death from toxic myocarditis followed an intrauterine injection which was administered to a patient whose embryo was ectopic (in the uterine tube). Abstracts of the records of 3 additional patients are presented, in these women complications developed after injection of a paste, but they did not die.

CASES ENDING IN DEATH

CASE 1—A white woman 30 years of age died in a hotel room five days after an abortionist had injected a paste into her uterus. Autopsy revealed that death was caused by diffuse peritonitis, which had resulted from necrosis and perforation of the wall of the fundus of the uterus. Hemorrhagic cervicitis and endometritis were also present. The fetus had been aborted.

CASE 2—A Negro woman 18 years of age visited an abortionist, who injected a paste into her uterus. She aborted the day after the injection, the expulsion of the fetus was accompanied and followed by pain in the lower part of the abdomen and by uterine hemorrhage. These symptoms gradually became more severe until she was admitted to a hospital on the ninth day after the injection had been made. The patient had generalized peritonitis, she did not respond to therapy and died sixteen days after the intrauterine injection had been made. At autopsy, the uterus was swollen and boggy but not perforated. A fragment of necrotic placenta was adherent to the endometrium, and acute endometritis was present. The uterine tubes were swollen, and there were hemorrhages in the fimbriated ends. There was diffuse fibrinopurulent peritonitis. A few gram-positive cocci were seen in smears of the peritoneal exudate, but growth was not obtained in cultures. The cause of death was acute diffuse peritonitis secondary to an induced

CASE 3—A white woman 25 years of age was admitted to a hospital in a state of coma a few hours after visiting the office of an abortionist. She was in shock and there was bleeding from the cervical canal. She aborted a fetus at 3 months' gestation, and her death occurred nine and one-half hours after she entered the hospital. At autopsy, the heart was dilated and there was a patent foramen ovale which was 1.5 cm in maximum diameter. The lungs were endematically crepitant and dotted with numerous focal hemorrhages. The uterus was soft and boggy. When the uterus was opened, a faint aromatic odor was noted. The placenta was attached to the fundus, and the fetal membranes were present. There were three areas of superficial necrosis of the decidua vera, the largest of which was 2 cm in diameter. The placenta was swollen, and the meningeal vessels were engorged. There were perivascular hemorrhages in the parenchyma of the brain. Microscopic examination revealed coagulation necrosis of the endometrium with pronounced infiltration by polymorphonuclear leukocytes. In some vessels of the decidua small masses of altered hemoglobin were found, characteristic of the clots produced in blood by soapy pastes. The endothelial cells lining the blood vessels throughout the body were swollen, presumably this was a reaction to an irritating substance within the lumens. Pulmonary edema was present, and there were focal collections of polymorphonuclear leukocytes within the alveoli. Organisms could not be demonstrated by Gram's technique. Advanced degeneration of the myocardium and focal myocarditis were observed. In the brain, hemorrhages surrounded a few small arteries containing altered hemoglobin in the lumens. There were focal areas of acute hemorrhagic meningitis in which organisms were not found, and it was believed that these lesions resulted from microemboli of the abortifacient which had been carried from the uterus through the patent foramen ovale.

Results of examinations for alkaloids, ergot and barbiturates were negative. Stern distillation of the uterus and placenta yielded small droplets of an aromatic oily substance.

The causes of death were intoxication and embolism resulting from intravascular injection of an abortifacient paste. The premises of the abortionist were searched immediately after the autopsy was completed, and on a treatment table was found a pint jar which contained approximately 250 cc of green thick soapy fluid which had an odor identical with the aromatic substance in the uterus.

CASE 4—A white woman 32 years of age went to an abortionist's office, where a paste was injected into her uterus. The patient died while on the treatment table. On postmortem examination the brain was found to be swollen and hyperemic. The heart was dilated, and its chambers were filled with fluid blood. The lungs were crepitant and showed many hemorrhagic areas. The bronchi contained no blood in their lumens. A strong odor of iodoform was noted when the lungs were sectioned. The liver, spleen and kidneys were decidedly hyperemic. The uterus was enlarged to 140 by 89 by 76 cm. There was a path of mucosal hemorrhage in the endocervix, extending from the external os to the region above the internal os (fig. 1). Thick soapy material was present in the uterine cavity, some of this was found behind a partially separated placenta and between the intact amniotic sac and the uterine wall. The amniotic material also had an odor of iodoform. The amniotic sac contained a fetus of 12 weeks' gestation.

Microscopic sections of the uterus revealed the characteristically altered hemoglobin in dilated veins of the myometrium (fig. 2). There were foci of necrosis in the placenta and decidua basalis, but there was no associated cellular reaction. Sections of the lungs showed hemorrhage and edema in the alveoli, without cellular reaction. In addition, some pulmonary capillaries contained altered hemoglobin.

Death was believed to have occurred within a few minutes after the injection and was caused by embolism and intoxication from a soapy material in the blood vessels. This soapy substance had gained access to the blood stream.

of pain in each and associated nausea and vomiting in 2. One of these had had a pyloroplasty several years earlier. Evidence of active inflammatory processes or crater was found at operation in each of these 3 patients.

Fifty of the 55 patients with symptoms and observations meeting conventional indications for surgery, table 1 C, have not as yet required operation. Before treatment with banthine moderately severe or intractable pain was described by 22 patients in spite of their use of conventional medical treatments. Intracutaneous pain did not occur during banthine therapy. Six patients, however, described some ulcer like pain gradually diminishing during the first eight to forty-two days (average twenty-two days). They were then completely relieved. Three patients now treated forty-seven, fifty-five and sixty days are not yet entirely relieved. After complete relief from pain 11 patients of this group had single recurrences lasting seven to forty-seven days (average twenty days). Symptoms recurred during episodes of illness or emotional stress and usually after the dose had been reduced to the maintenance level. Rest, diet and atacid therapy were used to supplement increased doses of banthine during the recurrence. In each patient pain is now relieved. Vomiting occurred frequently among the 55 patients who had indications for surgical treatment preceding their use of the drug. Vomiting recurred in 5 during the brief episodes of recurrence of pain. Hemorrhage occurred in 21 patients during banthine therapy. This was manifest as tarry stools or a single hematemesis in 8 patients and one or more bouts of hematemesis and melena requiring one or more blood transfusions in 13. Bleeding has not recurred as yet during continuing therapy. Of the 50 patients with indications for surgery who have not as yet required operation 48 are at the present time taking a regular diet without supplementary medications.

Results of clinical trial as judged by effect on symptoms in the 95 patients continuing use of banthine have been gratifying. Details of change in the weight of patients are not reported. However most have gained weight, some have maintained weight equal to that when treatment was started, and a few who were decidedly overweight because of excessive use of milk, milk and cream have eliminated this food from their diet and have accomplished reduction. With the exception of 2 patients who after forty-seven and fifty-five days of treatment are not yet completely relieved the group has continued regular work or if originally incapacitated has returned to regular work. Hemoglobin, red blood cell, white blood cell and differential white blood cell count were determined two or three weeks after the start of treatment and subsequently within a month or two. Abnormalities did not occur in hemoglobin and red blood cell count increased in several patients. Specimens of urine were also obtained at the time of the blood cell counts and analyzed. No significant abnormalities were noted.

Since the first days of clinical trial it has been repeatedly demonstrated that 100 mg of banthine usually promptly eliminates pain of ulcer. In most patients, therefore, it has not been possible to rely on occurrence of pain as a guide to therapy. In the few whose pain persisted for several weeks pain could be used as a guide, and each was advised to take 100 mg every four hours day and night and to restrict activity, limit diet and occasionally use antacids. After eventual development of relief in these few patients the symptom of pain could no longer guide therapy. The objective of ulcer treatment is complete and maintained healing of the lesions and avoidance of further activity with vomiting and associated obstruction. To work toward this objective it has been necessary to rely on fluoro-

scopic examinations and roentgenograms as a guide to effectiveness of therapy and to advisability of reducing the dose from therapeutic levels of 400 to 600 mg each twenty-four hours to the maintenance level of 200 mg each twenty-four hours. Roentgenograms were obtained two or three weeks after the start of treatment and subsequently at about six weeks and then every two or three months.

Information gained from study of these roentgenograms by one of us (R. J. R.) is now reported. It should be emphasized, however, that deformities observed had been caused by activity of ulcer during many years and that changes reported with treatment are often limited by the presence of permanent scars.

ROENTGENOLOGIC EXAMINATIONS

Each patient discontinued taking banthine during the twelve hours preceding roentgenologic examinations and also omitted taking breakfast. In most instances barium sulfate was given early in the morning during fluoroscopic examination and roentgenograms both large and small, or spot roentgenograms were obtained then and at later intervals. Some examinations were obtained during the early afternoon six hours after ingestion of a preliminary quantity of barium sulfate. Retention if present was noted, and another quantity of barium sulfate was then ingested, this was watched fluoroscopically, and roentgenograms were obtained. Many patients had several studies during a period of years before use of banthine. Each patient had one study a few days before the start of treatment. As yet 23 patients have had but one study after use of the drug, but the remainder have had two or more. After or during treatment with the drug, with omission of 5 patients who subsequently had operative treatment, the number of studies varied from one to six, average 2.4.

For the purpose of analysis and presentation, deformity of the duodenum has been classified slight if the scar, spasm or edema narrowed the lumen to less than one-fourth its normal diameter, moderate if the narrowing was between one-fourth and three-fourths of normal and severe if narrowing was three-fourths or greater or if the duodenum could not be visualized during the study.

Five of the original 100 patients had surgical intervention five to ten weeks after the start of banthine therapy. Initially the deformity in these 5 was termed slight in 1, moderate in 2 and severe in 2. During treatment and preceding surgical intervention the slight deformity remained apparently slight, the two moderate deformities became severe and the two severe deformities remained pronounced. Before treatment retention of barium at six hours was 90, 60 and 20 per cent in 3 patients, there being no retention in 2. After treatment with banthine and prior to operation each patient showed retention at six hours the figures being 40, 50, 50, 60 and 100 per cent. One patient with a severe deformity associated with a previous pyloroplasty exhibited an ulcer crater 1 cm in diameter before banthine therapy, and this persisted at 0.8 cm after twenty-four days of treatment. In each of the 5 patients surgical intervention was performed for relief of obstruction. As previously described, operative observations determined that obstruction was caused by scar tissue without inflammation in 2 patients. ---

with inflammation and edema in 1, and scar inflammation, edema and an ulcer crater in 2. Among the remaining patients with duodenal ulcer who have not as yet required surgical treatment 11 exhibited delay of emptying of barium from the stomach before use of banthine, retention varying from 20 per cent at four hours to 75 per cent at six hours. In each of these 11 retention was not observed during studies made after treatment with the drug had started.

Röntgenologic Demonstration of Ulcer Crater—In 33 patients among the 95 who have not yet required surgical treatment a barium-filled defect or pocket was outlined on roentgenograms and could be interpreted according to one of us (R. J. R.) as an ulcer crater. In 4 patients the crater of the duodenum had been visualized during preceding years but was not demonstrated during study just before institution of banthine therapy. Therefore 29 patients had craters when treatment was started. One of the 29 had more than one duodenal crater, 27 had one crater each, varying in size from 0.2 to 1.6 cm, average 0.6 cm. The remain-

TABLE 2—Incidence and Degree of Deformity and of Crater in 88 Patients with Duodenal Ulcer

		Present Degree of Deformity with Banthine Treatment				
		Group Total	None	Slight*	Moderate†	Severe‡
A	Patients with marked deformity before banthine					
	Duodenal deformity	45	1	0	24	14
	Ulcer crater	19	18	0	0	1‡
B	Patients with moderate deformity before banthine					
	Duodenal deformity	21	8	9	7	2
	Ulcer crater	9	9	0	0	0
C	Patients with slight deformity before banthine					
	Duodenal deformity	22	3	14	4	1
	Ulcer crater	4	4	0	0	0
	Total incidence of deformity	88	7	29	35	17
	Total incidence of crater	33	32	0	0	1‡

* Narrowing of duodenum less than 25 per cent.

† Narrowing 25 to 75 per cent.

‡ Narrowing 75 per cent or greater.

§ Recurrence at two hundred and sixty-three days.

ing patient in this group of 29 had a crater of the jejunum located 1 cm distad to a gastroenterostomy stoma. By the time of the first or the second studies during treatment with banthine and at fourteen to seventy-seven days roentgenograms and fluoroscopic examination failed to demonstrate ulcer in 21 of the 28 patients with duodenal ulcer or in the patient with jejunal ulcer. In 6 of the remaining patients small craters were visualized during treatment at fourteen, fourteen, twenty-four, thirty-six, forty-seven and fifty-five days but were not visualized during subsequent examinations. The seventh patient is the one who had multiple craters before treatment. Several craters were present in this patient as judged by the last roentgenograms made seventy-five days after the start of treatment, but decided improvement was evident.

After healing (and with 3 exceptions) craters were not visualized in any of the remaining patients of the group of 95 during an examination. One of the exceptions was the appearance fourteen days after the start of treatment of a defect 0.1 cm in diameter which

possibly represented a small crater. This had not been visualized before treatment and has not been demonstrated in subsequent studies. Another was appearance of a defect 0.1 cm in diameter observed two hundred and forty days after start of treatment and considered a possible small crater. This also was not visualized on earlier or subsequent films.

The third exception was definite recurrence of ulcer during the course of treatment in 1 of the 95 patients. The ulcer immediately before preceding banthine therapy was 1.6 cm in diameter, after thirteen days was 0.6 cm in diameter, and at twenty-nine days could not be visualized. Tests of gastric secretion revealed an atypical response: increase of volume and acidity of gastric secretion with banthine. However, symptoms were entirely relieved and the roentgenogram evidenced healing until two hundred and sixty-three days after the start of treatment when pain, nausea and vomiting recurred. This patient was then taking a maintenance dose of 200 mg of the drug daily and had a severe respiratory infection or influenza. Roentgenograms revealed a crater 2 cm in diameter which persisted with only moderate improvement during four weeks of use of full therapeutic doses of banthine and then decreased to 0.3 cm during three weeks of this therapy supplemented by rest in the hospital, restriction of diet and use of antacids. This patient is now active and comfortable. His crater is the only one now present as judged by latest fluoroscopic examinations and roentgenograms in any of the aforementioned 95 patients.

Röntgenologic Demonstration of Deformity—Visualization of deformity of the gastrojejunostomy stoma or its afferent or efferent loop was not entirely satisfactory in the 7 patients whose condition was diagnosed as jejunal ulcer because of occurrence of pain and hemorrhage. Deformity suggesting a crater was seen in 1. Delay of passage of barium sulfate through the efferent loop of jejunum occurred in 2 and narrowing of this loop in 1. Deformity when visualized decreased or disappeared as judged by studies made during the course of banthine therapy. However, deformity of the duodenum by scar from the ulcer which had led to the gastrojejunostomy was visualized in each patient.

After excluding the 5 patients treated by surgical means and the 7 patients with jejunal ulcer, there remain 88 in whom the effect of treatment on the deformity from a duodenal ulcer could be followed. Incidence and degree of the initial duodenal deformity and associated incidence of crater are summarized in table 2.

Roentgenograms of 45 patients (table 2 A) revealed severe deformity (narrowing 75 per cent or greater) before banthine therapy, and among these an ulcer crater could be seen in 19. The present degree of deformity as determined by roentgenograms during treatment with the drug had lessened to slight, moderate or no deformity in all but 14. Of the 19 associated ulcer craters only one is now demonstrated: this in the patient whose large crater had healed and then recurred at two hundred and sixty-three days. Twenty-one patients (table 2 B) had moderate deformity (25 to 75 per cent narrowing) before banthine therapy and of these deformity in 2 patients remained moderate and in the 7 remaining patients slight.

none. The 9 ulcer craters in this group could not be visualized after treatment. Twenty-two patients (table 2C) had slight deformity (less than 25 per cent narrowing) before use of the drug which became severe in 1 and moderate in 4, the deformity in 14 remained the same and in 3 disappeared. None of the four associated craters could be visualized after treatment.

Although totals of the incidence of severe, moderate or slight deformity and incidence of crater in table 2 reveal frequent improvement or shift to lesser degrees of deformity we made a more accurate estimate of change by studying the sequence of roentgenograms for each patient individually. Of the 45 patients who started with severe deformity, comparison with roentgenograms before treatment revealed definite lessening of deformity or improvement with treatment in 35, no change in 8 and increase of deformity possibly related to contraction by scar tissue with healing in 2. Of the 21 patients who had moderate deformity, comparison reveals improvement in 12, no change in 7 and increase of deformity in 2. Of the 22 patients with slight deformity, comparison reveals improvement in 6, no change in 10 and increase of deformity in 6. Of the 88 patients with duodenal ulcer whose roentgenograms have been analyzed in the foregoing paragraphs 23 have as yet been studied only after a few weeks of treatment. Later examinations may show more improvement. It is not anticipated that deformity from scar of long-existing ulcers present in many of these patients can lessen.

COMMENT

The 100 patients with peptic ulcer whose course during experimental treatment using banthine is described had with few exceptions serious ulcer problems. They were referred to the surgical service or sought treatment with banthine because of failure of conventional treatment. Results with banthine usually used in lieu of rest, restriction of diet or antacids or other medications have been gratifying. Elimination of conventional restrictions and medical treatments necessary for study purposes, however, is not necessarily recommended as a good general practice. Occasionally because of delay of relief of pain or recurrence of pain banthine treatment has been supplemented.

Although 55 of the patients with duodenal ulcer and 7 with stoma ulcer had symptoms of complications meeting conventional conservative indications for surgery, operation as yet has been necessary in only 5. However, use of banthine instead of surgery, especially in patients who have had repeated hemorrhage, is also for study purposes and not necessarily recommended.

As discussed in previous reports,¹³ studies of effects of vagotomy alone or preferably vagotomy with gastroenterostomy indicate that reduction of propulsive gastric peristalsis is the most consistent change associated with healing of ulcer, reduction of volume and acidity of secretions being less consistent. The drug similarly consistently reduces gastric motility. It reduces volume and acidity of secretions less frequently than vagotomy, and only occasionally and in large doses does it prevent hyperacidity during the first hour or two after the injection of insulin. Healing or quiescence of ulcer with banthine therapy, like studies following vagotomy, therefore demonstrates the importance of mechanical factors or motility in the causation of ulcer.

Both subtotal gastric resection¹⁴ and vagotomy with gastroenterostomy¹⁵ are performed with some risk of mortality and with an incidence of recurrence of ulcer. In both respects vagotomy with gastroenterostomy is the safer operation. Each procedure is also associated with postoperative side effects or complications and it is much better that peptic ulcer when possible be treated medically. In most instances ulcer should be amenable to medical treatment. It is our present opinion that banthine is a medical treatment better than that heretofore available and that need for surgery has and will decrease. It is also evident from experiences during the last year that the greatest remaining handicap is the presence of severe mechanical obstruction at the outlet of the stomach. Perhaps scar tissue can be avoided by prophylactic use of a simple treatment such as banthine, which patients can and will take. However, obstruction if already present to a pronounced degree may lead to failure of banthine therapy and need for surgical intervention.

Since pain of ulcer is usually relieved completely and before healing of ulcer can occur, it seems advisable that the result of banthine therapy be followed by frequent roentgenologic studies. Also, since these studies have demonstrated slow or late decrease of deformity in many patients, it seems advisable that the drug be used in adequate amounts (about 100 mg every six or every four hours day and night). Evidently this therapeutic dose schedule should be continued a minimum of one to two or three months. Since the major ulcer problem is avoidance of recurrences, it seems advisable that once healing has occurred a minimum maintenance dose of 50 mg every six hours be continued indefinitely with continuation of the dose taken during the middle of the night. Illness or excess work or worry has reactivated ulcer symptoms temporarily in 16 of our patients. It therefore also seems advisable that each patient on continuing the maintenance dose schedule be instructed to resume the therapeutic schedule prophylactically should illness or stress occur.

Each patient given banthine should be cautioned that dryness of the mouth will be troublesome during the first few days but variable and much less troublesome later. Also, he should be advised that dilatation of the pupil when therapeutic doses are taken will interfere somewhat with the reading of fine print. A few patients will experience constipation and require advice concerning laxative diet or medicine. Not infrequently decrease in force of urination will occur, and in an occasional patient with prostatic obstruction urinary retention has developed. Continuation of decreased amounts of banthine for several days and then a full schedule has been possible in each patient with but 1 exception. This patient had indication for a transurethral prostatic resection and several months after operation was able to take full treatment with the drug.

CONCLUSIONS

1 Banthine (beta-diethylaminoethyl xanthene-9-carboxylate) as the methachloride or the methabromide is an active anticholinergic preparation useful as a treatment for peptic ulcer.

2 Early experiences indicate that by its use most patients having serious disability from ulcer can avoid surgical operation.

13 Grimson K S, Rundles R W, Baylin G J, Taylor H M and Linberg E J. Vagotomy. Observations During Four Years Surgery 27:49, 1950.

14 Lyons C K and Grimson K S. Complications Following Subtotal Gastric Resection Performed Since June 1944 for Peptic Ulcer in 132 Patients. Comparison with Those of Vagotomy in 148 Surgeries to be published.

15 Footnotes 13 and 14.

DOSAGE OF AUREOMYCIN IN PRIMARY ATYPICAL PNEUMONIA

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The effectiveness of aureomycin in the treatment of primary atypical pneumonia appears to have been established. Clinical studies reported to date have been in agreement that the course of the disease is altered by prompt defervescence within twelve to seventy-two hours and a marked symptomatic improvement which accompanies the defervescence.¹ These effects have been noted in the severest cases of the disease regardless of the duration of illness prior to treatment. That the response is more than a vagary of the disease has been well demonstrated by comparison of parallel series of aureomycin and penicillin-treated groups of patients from the same geographic location, the same population (military) and during the same seasonal outbreak of primary atypical pneumonia.^{1d}

Dosage levels of aureomycin selected for use in the treatment of primary atypical pneumonia have been chosen arbitrarily, the dosage which has been found effective in other diseases being used as a guide. The absence of serious toxicity has made it possible to employ maximal doses, gastrointestinal irritation being the only limiting factor when the oral route is used. When compared with the severity of the disease treated, the gastrointestinal toxicity has been found to be relatively insignificant in most reported series in which dosage levels of 3 to 4 Gm daily have been used. It has been our experience, however, that nausea, epigastric distress, vomiting, diarrhea and rectal irritation have occurred in a sizable proportion of patients receiving 2 to 4 Gm of aureomycin daily. These symptoms have caused some patients to refuse occasional doses, others have rejected further treatment entirely.

Because of the evident response of a known virus disease to aureomycin in amounts which were insufficient to produce significant blood levels,² it was considered justifiable to investigate the value of relatively small doses of aureomycin in primary atypical pneumonia. The results of treatment of 14 patients with this disease in whom daily doses of 1.0 to 1.5 Gm of aureomycin were employed are presented here.

MATERIAL AND METHODS

During the period from December 1948 to October 1949, 14 patients were admitted to the medical ward and private services of St. Luke's Hospital with the diagnosis of virus pneumonia established by the history, normal white blood cell and differential counts, definite roentgenologic evidence of pulmonary infiltration, lack of response to adequate doses of penicillin and absence of clinical improvement during the period of obser-

vation. Of the 14 patients selected for this report 12 met all these criteria. In addition 2 patients have been included who were treated with aureomycin as soon as the clinical diagnosis was made without a control period of penicillin therapy. Sputum cultures were obtained prior to treatment in the 8 patients who had not been given penicillin before their admission to the hospital. Serial cold agglutinin titers were done in all cases. Roentgenograms of the chest were done at three to seven day intervals.

All patients were febrile at the time administration of aureomycin was begun, temperatures ranging from 101 to 104 F. In no instance was the patient's condition considered critical, but all were acutely ill and symptoms of fever, cough, malaise, headache and anorexia were persistent despite adequate penicillin and symptomatic therapy. Antipyretics were not used.

Aureomycin hydrochloride was given orally in 250 mg capsules at six hour intervals in 12 patients and at four hour intervals in 2 patients. It was continued for varying lengths of time depending on the clinical course.

PRESENTATION OF MATERIAL AND RESULTS

The clinical history and the physical condition of the 14 patients selected were sufficiently typical to warrant a strong suspicion of pneumonia of nonbacterial origin on these grounds alone. The gradual onset of dry cough, malaise, anorexia, chilliness and fever was common to all. Severe, dry or only slightly productive cough was a prominent symptom in all except 2 cases, streaking of blood was noted by 2 patients. None had a history suggesting pleurisy although sticking pains in the chest, a sense of oppression and substernal distress on coughing were frequently present. The physical signs were those of dullness, diminished or slightly increased breath sounds and rales in varying degrees. In all cases physical signs were not in proportion to the degree of roentgen involvement. Frank lobar consolidation was not encountered. There was the usual increase in physical signs during resolution.

White blood cell counts on the patients' admission were below 10,000 in all cases and remained normal on repeated occasions.

Cold agglutinin titers rose to diagnostic levels, 1:40 or above, in 7 cases. This incidence is in keeping with the findings of other investigators, who have noted that treatment of primary atypical pneumonia with aureomycin tends to decrease the expected incidence of rises in cold agglutinin titer.^{1d} Peak titers of 1:40 were obtained in cases 7 and 10, 1:80 in case 2, 1:160 in cases 3, 9 and 12 and 1:320 in case 6.

Cultures of sputum taken prior to any treatment in 8 cases showed the usual bacterial flora of the upper respiratory tract including the streptococcus of the viridans group, *Staphylococcus aureus*, *Neisseria catarrhalis* and diphtheroids. Hemolytic streptococcus was present in cases 3, 7 and 10. None of the bacterial pathogens ordinarily associated with pneumonia as causative agents was discovered. Five of the 6 patients from whom a specimen of sputum was not obtained prior to treatment showed diagnostic rises in cold agglutinin titer.

The roentgenologic evidence of pulmonary infiltration was present in all cases. Only 2 showed involvement of more than one lobe. Lobar consolidation or pleural fluid was not noted.

From the Medical Service, St. Luke's Hospital.

Aureomycin for this study was supplied by the Lederle Laboratories Division, American Cyanamid Company.

1 (a) Schoenbach, E. B. and Bryer, M. S. Treatment of Primary Atypical Non-Bacterial Pneumonia with Aureomycin, *J. A. M. A.* **139**: 275-280 (Jan. 29) 1949. (b) Kneeland, Y., Jr., Rose, H. M., and Gibson, C. D. Aureomycin in Treatment of Primary Atypical Pneumonia, *Am. J. Med.* **6**: 41-50 (Jan.) 1949. (c) Finland, M., Collins, H. S., and Wells, E. B. Aureomycin in the Treatment of Primary Atypical Pneumonia, *New England J. Med.* **240**: 241-247 (Feb. 17) 1949. (d) Meiklejohn, G. and Shrago, R. I. Aureomycin in Primary Atypical Pneumonia, *J. A. M. A.* **140**: 391-396 (May 28) 1949.

2 Wright, L. T., Sanders, M., Logan, M. A., Prigot, A., and Hill, L. M. Aureomycin: A New Antibiotic with Virucidal Properties, *J. A. M. A.* **138**: 408-412 (Oct. 9) 1948.

The duration of illness prior to treatment with aureomycin was estimated by considering the onset as the day on which the patient first noted the chilliness, fever and severe cough. In most instances the patient could name the day on which he first noted an increase in symptoms over those of a usual infection of the upper respiratory tract. All but 3 were in the first week of illness.

Penicillin was given in adequate doses for forty-eight or more hours in 11 cases and for thirty-six hours in 1 case, without significant alteration of the course of the disease. In 6 instances it was given before the patients' admission to the hospital, in 8 it was administered in the hospital. If given before admission, it was in the form of a single daily injection of 300,000 units of a prolonged action preparation. In the remaining 2 cases treatment was begun as soon as the diagnosis was made on clinical grounds, with the support of a normal leukocyte count. The temperature recorded at the start of treatment with aureomycin represents the peak rectal temperature within a two hour period before or after the first dose.

The response to treatment is indicated in the accompanying table. On the dosage schedule outlined it was found that 12 of the 14 patients became afebrile (rectal temperature below 99.6 F) within two and a half days and remained so thereafter. The patient in case 2, who

COMMENT

By the use of a control period to demonstrate the absence of response to penicillin, the diagnosis of primary atypical pneumonia is made more certain. Unfortunately, the patients so managed are brought to a stage in the disease at which it is possible that defervescence and improvement may occur with supportive treatment alone. The evaluation of a drug given at this time in the course of the illness is difficult.

If the effectiveness of aureomycin in primary atypical pneumonia is judged by the criteria of rapid defervescence and subjective improvement occurring uniformly in all patients treated, it would appear that the dosage level employed in these patients is an effective one. The prolonged course expected in at least one half or one third of a group of patients with atypical pneumonia did not occur. Duration of the disease prior to treatment and severity of symptoms did not alter the response.

It is of interest to observe that duration of pulmonary infiltration as determined by roentgenologic examination has apparently not been shortened despite the clinical improvement which occurs. As mentioned by others, larger groups of cases must be studied before statistical analysis may be applied to comparative studies of primary atypical pneumonia with and without aureomycin therapy. In a general way, however, the response

Results of Treatment

Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sex	M	F	M	F	M	M	M	M	M	M	M	M	M	F
Age	36	36	17	62	19	22	65	35	15	17	53	13	26	44
Days ill before aureomycin was given	6	4	7	8	6	3	14	4	5	0	2	6	8	5
Penicillin days	3	2	2	5	2	2	3.5	1.5	3	0	0	2	4	2
Temperature at start of aureomycin F	103.8	103	103	101	102	103	102	102	101.6	101	102.4	101	102.8	103
Aureomycin 250 mg	q 6 h	q 6 h	q 4 h	q 4 h	q 6 h	q 6 h	q 6 h	q 6 h	q 6 h	q 6 h	q 6 h	q 6 h	q 6 h	q 6 h
Days drug given	5.5	10.5	4.5	4.0	5.0	10.5	4.0	4.75	8	3.0	7.5	3.75	7.0	6.0
Duration of fever days	0	5.0	1.5	1.5	1.5	3.5	2.0	2.0	1.0	1.0	2.5	1.0	1.5	2.5
Duration of pulmonary lesion days	9.8	14	9	11	8	10	6	7	12	10	6	12+	11	8
Drug toxicity	0	0	0	0	0	0	+	0	0	0	+	0	0	+

was febrile for five days after treatment with aureomycin was begun, had a normal temperature at the end of twenty-four hours, but it spiked each afternoon to 100.4 F for four days despite a satisfactory clinical response. Duration of treatment with aureomycin varied from three and a half to ten days. No relapses were noted.

Decided improvement in symptoms was observed to accompany the decline in fever. Malaise and headache disappeared, and appetite improved. Cough diminished and became more productive but cleared less rapidly than the other symptoms.

Resolution of the pulmonary lesions in roentgenograms was found to lag behind the clinical response. When one-half the time between the last roentgenogram showing residual changes and the first normal roentgenogram was taken as an arbitrary end point, the pulmonary changes were found to persist for as long as twenty-eight days after the patient was afebrile in 1 case. The usual duration, however, was between six and fourteen days. Duration of therapy bore no apparent relationship to the persistence of the roentgenologic changes.

Drug toxicity was manifested in 3 patients. Two of these had slight, transient nausea, while the third had five loose stools in one day. There was no hesitancy on the part of any patient about taking all doses. Aluminum hydroxide gel controlled the nausea effectively in the 2 patients who had this symptom. A therapeutic effect had been established in both cases before the nausea occurred.

may be likened to the use of other antibiotics and chemotherapeutic agents in pulmonary infections caused by specific organisms. Well established pulmonary lesions are seen to clear slowly by resolution and not at a rate comparable to the clinical response.

The desirability of using a minimal dosage in the case of such a drug as aureomycin, which can be given parenterally and which does not produce side effects in all patients when given orally, is open to question. Critically ill patients undoubtedly should be given the benefit of maximal doses whether orally or parenterally. It is our feeling at the present time, however, that most patients with atypical pneumonia can be treated adequately with aureomycin in doses of 1.0 to 1.5 Gm daily and escape much of the unpleasant gastrointestinal irritation which often accompanies larger doses. Further experience, particularly in a season when cases of greater severity and in larger numbers are encountered, may alter this view.

SUMMARY AND CONCLUSIONS

Fourteen patients acutely but not critically ill with primary atypical pneumonia have been treated with aureomycin. Twelve received 250 mg at six hour intervals, in 2 the same dose was given at four hour intervals. Ten patients were afebrile at the end of forty-eight hours and 3 at the end of seventy-two hours, and 1 had a low grade fever for four days after an initial response. No relapses were observed. Gastrointestinal complications were nil. This dosage level appears to be effective in larger doses. The treatment of these cases is effective.

SEMINAL VESICULITIS

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During the past few years at Lawson Veterans Administration Hospital I have with increasing frequency seen patients whose symptoms, before admission to the hospital, had directed ineffectual treatment toward the kidneys, the ureters, the urinary bladder, the gall-bladder, the gastrointestinal tract, the appendix and the neuropsychiatric system but who in reality had been and were suffering from an infection of the seminal tract, and, more specifically, seminal vesiculitis. Many of these unfortunate persons had experienced symptoms over periods of time ranging from several months to several years and had on occasions been subjected to operative procedures which left them with their identical preoperative complaints.

It is certainly not a new concept that the symptom complex of seminal vesiculitis can simulate disease of the abdomen, flank, back and lower extremities. Hugh Young¹ in 1913 wrote of "the great importance of examining the prostate and seminal vesicles in many painful conditions anywhere between the diaphragm and the toes." Yet too many physicians are prone to

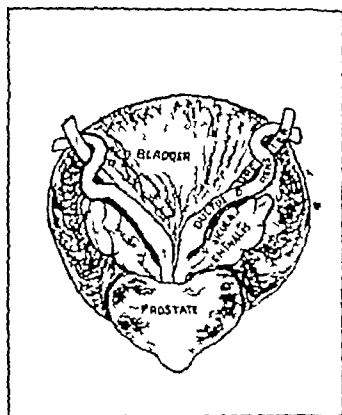


Fig 1

Fig 1—Demonstration of the close approximation of the seminal vesicles, vasa deferentia, ureters, urinary bladder and prostate gland.

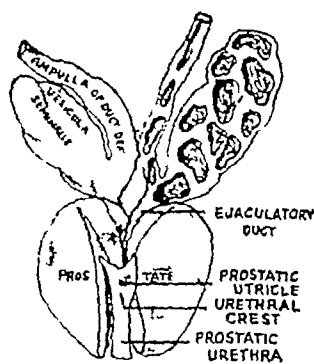


Fig 2

Fig 2—Demonstration of the course of the ejaculatory ducts and the structural interior of a vesicle.

forget that there are such structures as the seminal vesicles which can become infected either alone or, as is more usual, in association with infection elsewhere along the seminal tract and they forget that the resulting symptoms may be many and varied.

The purpose of this paper is to focus attention on infections of the seminal vesicles and on their etiologic, pathologic, diagnostic and therapeutic aspects. Special attention will be given to the different manifestations of the symptom complex, an understanding of this complex is essential to the proper conception of the entire problem.

ANATOMY

A prime requisite for a thorough understanding of the disease is knowledge of the anatomy of the seminal vesicles themselves and of their relationship to adjacent structures. Figure 1 shows the relation of the seminal vesicles to the vasa deferentia, the ureters, the urinary bladder and the prostate gland. These vesicles lie

between the base of the bladder and the rectum above and behind the prostate. The relationship between the prostate and the ejaculatory ducts as well as the structural interior of one seminal vesicle is shown in figure 2. Each vesicle is a single tube (varies from 10 to 15 cm uncoiled) which coiled on itself gives off irregular cecal diverticula.

It is obvious therefore, that any significant infectious process within or around the seminal vesicles could affect the contiguous structures. Poor drainage because of diverticular arrangement of the vesicles themselves and the small diameter of the ejaculatory ducts when congested promotes chronicity of infection.

PATHOLOGY

Generally speaking, the pathology of seminal vesiculitis is similar to that of any other hollow organ lined with secretory epithelium. The lesions are those either of suppurative or catarrhal inflammation and depend on the acuteness or chronicity of the process. In the acute phase the lesions range from those of simple catarrhal inflammation with its thickened occasionally eroded mucosa to those of diffuse involvement of the entire wall and of the adjacent perivesicular tissues. The ampulla and ejaculatory duct invariably share in the inflammatory involvement of the vesicle. Associated engorgement and inflammation of the colliculus seminalis and of the posterior urethra is the rule. Although prostatitis may be present at this time, it is more commonly associated with the chronic phase. The acute process may proceed to suppuration and abscess formation, it may subside or it may become chronic.

In the chronic phase the entire thickness of the wall of the vesicle and ampulla are usually involved in the inflammatory process. The vesicle may eventually be reduced to a fibrous cord or a multiloculated pus sac. Perivesicular fibrosis results in adhesions to the surrounding structures. This may cause fibrous contraction of the bladder neck and in rare instances obstruction of the lower end of the ureter. Infiltration and fibrosis distort the ejaculatory duct, narrow its lumen and consequently obstruct drainage from the infected vesicle.

Perirectal or ischio-rectal abscess may occur secondary to infection from the vesicle. An associated prostatitis is almost always present in the chronic phase making the infection a prostatovesiculitis. Cystitis and trigonitis are not uncommon complications.

ETIOLOGY

Clinically, the three main types of infections of the seminal vesicles are tuberculous, gonorrheal and non specific. The nonspecific type of infection will be considered in this paper. A large number of these infections follow gonorrhea. Chronic vesiculitis may follow an acute infection, although it often develops insidiously. Congenital anomalies, such as persistence of the müllerian duct, dilated or stenosed ejaculatory ducts seem to predispose to seminal vesiculitis. Congestion or distention over a long period of time as the result either of prolonged abstinence or of excessive sexual contact also predisposes to development of vesiculitis in the presence of adjacent or focal infection.

The most common form of seminal vesiculitis is produced by extension of infection after posterior urethritis. This regional extension, which sometimes follows instrumentation of an infected urethra, occurs either by migration along the contiguous surface of the mucosa or by lymphatic invasion. Infection by means of the blood stream in the course of systemic disease or from

Mr Thomas W. Scott and Mr Frank C. Roberts of the Department of Clinical Photography prepared the medical illustrations. From the Department of Urology, Lawson Veterans Administration Hospital, Chamblee, Ga., and Emory University School of Medicine. Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are a result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration. 1 Young, H. H. Role of Prostate and Seminal Vesicles in General Toxemia. J. A. M. A. 61: 822 (Sept. 13) 1913.

foci of infection is possible, as is secondary involvement from a focus in the epididymis

Prostatic disease which interferes with proper drainage of the ejaculatory ducts may set up conditions ideal for the development of vesiculitis. Urethral strictures which interfere with the proper drainage of urine from the bladder may result in an infection of the urethra, bladder, prostate and seminal vesicles

BACTERIOLOGY

Any pathogenic organism may cause a nonspecific seminal vesiculitis, and mixed infections are frequent. The causative organisms include *Staphylococcus* (*aureus*, *albus*), *Streptococcus* (*viridans*, *hemolytic*, *nonhemolytic*), *Escherichia coli*, *Aerobacter aerogenes*, *Bacillus pyocyaneus*, and diphtheroids. The gonococcus is a frequent precursor to these pathogens. These infections are much more common than is generally thought

SYMPTOMS

A consideration of seminal vesiculitis warrants a consideration of the entire seminal tract. The symptoms of infection of this organ are as a rule, associated with those of prostatitis and posterior urethritis and do not always have a specific origin. Dysuria and frequency may be present and at times nocturia (two to four times) is a prominent feature. A morning urethral drop and a light thin watery discharge at the meatus during the day occasionally occurs. These symptoms are often caused by a coexistent inflammation of the prostate and posterior urethra.

Some sexual disturbance is usually noted and may dominate the picture. Frequent seminal emissions and early "hair trigger" ejaculations are common. Nocturnal emissions are usually associated with exacerbations of a chronic infection. Bloody ejaculations are pathognomonic of vesicular involvement. Varying degrees of potency and impotency may develop, and erections may be frequent and painful. The libido varies. Occasionally a patient will feel worse after coitus, although the reverse usually occurs.

Functional nervous disorders often occur in association with prostatovesiculitis. Headaches and dizziness are frequent complaints. Neurasthenia develops when a susceptible person concentrates his attention on his symptoms, many of which have been present for several months despite various treatments. Renal colic is an infrequent observation. This colic stems from the vesiculitis which involves the periureteral tissues occasionally in early cases and from kinking adhesions or strictures in the protracted chronic cases. Rheumatic manifestations (e g chronic arthritis) may be due to a persistent focus of infections in the vesicles. This is true also of iritis or other conditions which are thought to be related to focal infection.

Recurrent epididymitis usually indicates chronic infection of the vesicles. Cystitis and trigonitis due to spread of infection from the posterior urethra may erroneously lead one away from examination of the urinary site in the prostate and vesicles. Prostatorrhea and spermatorrhea are usually due to prostatovesiculitis of noninfectious origin (e g, sexual excess or abstinence or frequent episodes of coitus interruptus). Actual urinary retention is found in some acute episodes, and occasionally some type of obstruction of the neck of the bladder results from a chronic, recurring infection of long standing.

One significant symptom remains, and its consideration has been deferred so that its importance may be emphasized. Of all symptoms it is undoubtedly the one

which may lead the unwary examiner astray. It is called pain. Consideration of pain resulting from infection of the seminal vesicle should include a consideration of pain resulting from coexisting involvement of the adjacent structures. This is a necessity, since it has been shown that any significant infectious process within or around the vesicles would most likely affect in some degree the contiguous structures.

A dull pain or ache in the perineum is evidence of congestion due to prostatovesiculitis. This is characteristic of true visceral pain, which is diffuse, poorly localized and frequently of a dull, boring nature. In the more acute processes the severity increases.

Although pain and tenderness are frequently felt in the tissues overlying a diseased viscus, they may also be experienced in tissues far from the infected organ. A given spinal segment provides autonomic nerve fibers to a visceral area and somatic nerves to a given area of the skin (dermatomes). The two types of structures thus linked may be some distance apart. Thus impulses from the viscera, on entering the cord, excite the cells of the corresponding somatic center. New impulses originating in these cells travel along the usual paths to the thalamus, which projects or refers the sensation to the somatic area (e g, skin or muscle from which it is accustomed to receive impulses). In this

Segmental Areas to Which Pain Is Referred

Male Pelvic Viscera	Area of Referred Pain *									
Ureter	D 11	D 12	L 1							
Testis	D 10									
Epididymis	D 11	D 12								
Bladder	D 11	D 12	L 1	S 3	S 4					
Prostate	D 10	D 11	S 1	S 2	S 3	S 5				

* D indicates dorsal, L lumbar and S sacral vertebrae

way spontaneous pain (including muscle pain and spasm) in superficial structures distant from the diseased site is explained. This conception of a referred pain, brought forth by Mackenzie, was supported by the work of Head, who mapped out the segmental distribution of cutaneous nerves responsible for paresthesias in disease states.

Along similar lines it is well to remember that pain in a normal viscus may result from disease in a distant organ through a visceromotor reflex. The accompanying table shows the segmental areas to which pain is referred in disease of the various male pelvic viscera (according to Head²).

The seminal vesicles develop from the Wolffian duct along with the epididymis, vas deferens, ampulla and ejaculatory duct. The referral areas from the vesicles alone are probably the eleventh and twelfth dorsal vertebrae. Figure 3 illustrates the areas listed in the table.

Pain experienced in the flanks, epigastrium, upper abdominal quadrants, lower abdominal quadrants and suprapubic region as a result of infection in the seminal vesicles, prostate and adjacent structures is thus explained. Also explained are the aches and pains of the groins, buttocks, perineum and lower extremities, along with the paresthesias and itching sensations around the rectum and other areas of referred sensation. It is easy to see how in the presence of such symptoms the diagnoses of acute appendicitis, kidney disease, ureteral disease, gallbladder disease, gastrointestinal disease and others could erroneously be made by those who do not understand the symptom complex.

of seminal vesiculitis and who fail because of lack of thought to perform proper rectal examination and relatively simple laboratory procedures which would lead them to correct diagnosis

DIAGNOSIS

The diagnosis of seminal vesiculitis is made by history, physical examination, microscopic examination of expressed secretions, endoscopy and vesiculography

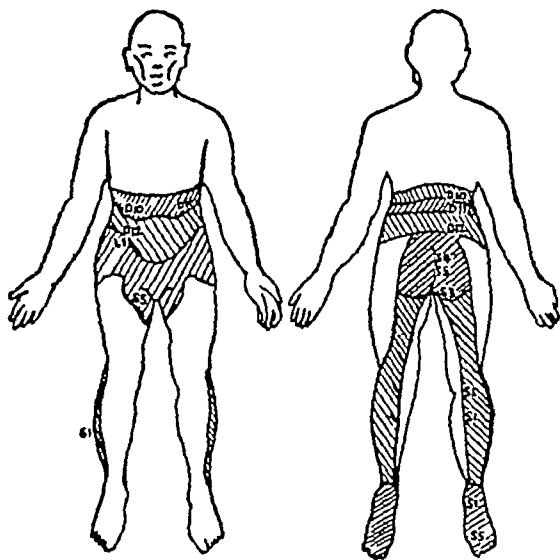


Fig 3—Illustration of the segmental areas to which pain is referred in disease of the various male pelvic viscera. In the anterior view the tenth dorsal segment (D10) should be illustrated at a higher level than the eleventh dorsal segment (D11)

History and Physical Examination—Symptoms and observations which probably are intimately associated with those of concomitant prostatitis and/or other inflammatory lesions of the genital tract may be revealed by history and physical examination. These have been discussed in the section on symptoms. In addition the following observations may be made. A history of relief of symptoms, particularly pain, after the passage of large amounts of flatus or feces should direct one's attention toward the prostate and the seminal vesicles. Pressure on these latter structures caused by an accumulation of substances in the rectum tends to accentuate or bring on symptoms referable to prostatovesiculitis.

Frequently I have had the opportunity to perform a rectal examination on a patient and to discover infected seminal vesicles which had not been observed by a previous examiner. It must be remembered that these vesicles may be situated in a more superior and lateral position in relation to the prostate gland than is usually thought to be the case. Examination should always be performed with the patient in a knee-chest position, and the approach should be gentle. A rough, hurried approach on the part of the examiner most frequently results in a completely unsatisfactory rectal survey and a high percentage of missed diagnoses when vesicle disease actually exists.

The examiner should note the size, distention, induration, tenderness, perivesicular scarring and thickening, nodularity and calcification of the vesicles and the degree of emptying on stripping. A normal vesicle may be palpable but usually is not. Early or mild catarrhal infection which is limited to the mucosa may present no signs of enlargement or induration. Under these conditions an increased white blood cell count in the vesicular secretions makes the correct diagnosis obvious. Small, tender, boggy vesicles are usually infected. In cases of acute infection the palpation of a hot, distended, tender, tense vesicle on top of a swollen prostate is enough to confirm a diagnosis. Induration in the area of the seminal vesicle without actual palpation of the vesicle itself is evidence of old or recent infection. In some cases of chronic vesiculitis the rectal observations may not substantiate the diagnosis. Such findings demand examination of the vesicular secretions.

Microscopic Examination of Expressed Secretions—Conclusive evidence of seminal vesiculitis is usually given by

laboratory methods. Unmixed secretions cannot be obtained by massage, but the more solid portion is derived from the vesicles. Pure unmixed secretions can be obtained only by catheterization of the ejaculatory ducts through an endoscope. Chronic infected vesicular fluid contains thick mucus with entangled pus cells, degenerating epithelial cells, sperm and sometimes red blood cells. As a rule, sperms are few in number, deformed and hypoactive. Stripping of an acutely inflamed vesicle should never be done. Initial massage may yield a pus-free secretion because the involved ducts (ejaculatory or prostatic) are plugged. Therefore a negative examination on one or two occasions is insufficient proof that there is no infection.

Endoscopy—Endoscopy should never be performed during the acute phase of the infection but rather after this phase has subsided. The posterior urethra is involved in almost all cases of seminal vesiculitis so that during endoscopy one may visualize a reddened granular mucosa which may present a shaggy exudate. Infrequently, polyposis may be present. There is enlargement, reddening and edema of the colliculus seminalis, often resulting in nonvisualization of the openings of the ejaculatory ducts. In cases of associated chronic prostatic infection, the prostatic ducts may be wide and gaping because of infiltration of their walls. Pus exuding from the ejaculatory ducts is a pathognomonic sign of vesiculitis.

Trigonitis as well as an inflammatory process involving the floor of the bladder and bladder neck often accompany prostatovesiculitis. Occasionally one sees a contracture of the bladder neck or an actual inflammatory fibrous bar formation at the posterior vesical lip as a result of chronic recurrent disease. It is possible that early unexplained ectasia of the ureters may be due to fibrous adhesions resulting from instances of perivesiculitis and that inability to pass ureteral catheters may, in some cases, be due to slight kinking of the terminal ureter secondary to a similar process.

Vesiculography—The value of vesiculography in the diagnosis of seminal vesiculitis is limited. It may be performed in one of two ways, by injection of contrast medium through each ejaculatory duct (fig 4A) or by injection of contrast medium through a vasotomy incision in the scrotal portion of the vas deferens (fig 4B). The resulting vesiculogram in a normal case shows the ampulla and vas to be distinct from the pyramidal vesicle. The distinct angle between the ampulla and the vesicle



Fig 4—Normal vesiculograms. A demonstrates that obtained by injection of the ejaculatory duct with a suitable opaque material while B is the result obtained by injection of this material through a vasotomy incision in the scrotal vas. Note angle between the seminal vesicle and the ampulla of the vas.

is either decreased or abolished in certain infections, particularly in those of the catarrhal type. In the common mild catarrhal type of inflammation the vesiculogram usually appears normal. If the catarrhal process continues or becomes more severe, there is diminution or obliteration of the ampulla-vesicle angle and the vesiculogram resembles a tortuous dilated ureter. In the sclerotic interstitial type of infection adjacent locules may become partially or completely sealed off, with resultant deformity and incomplete filling of the vesicle and the vesiculo-

gram. A combination of the catarrhal and interstitial types is not uncommon. It seems to me that the main indication for vesiculography is to determine the degree of seminal vesiculitis and the existence of stricture either of the seminal or ejaculatory ducts or of the vasa. Complications of vesiculography include epididymitis and its sequelae on occasions and rarely stenosis of the ejaculatory duct.

For practical purposes the diagnosis of seminal vesiculitis or prostatovesiculitis is usually made from the positive observations by palpation of the prostate and vesicles in the course of rectal examination and examination (microscopic) of the expressed secretions. The history of bloody ejaculations and the visualization during the course of endoscopy of pus exuding from the ejaculatory duct offer pathognomonic evidence of the disease. Investigation of other systems of organs should be carried out as indicated (e.g., urography and cholecystography) so that possible concurrent disease may not be overlooked.

TREATMENT

The treatment of vesiculitis in either the chronic or acute form cannot be dissociated from the treatment of any associated lesion along the genital or lower urinary tract (e.g., prostatitis or urethral stricture). In chronic phases of the disease proper massage of the prostate and vesicles is probably the most effective method of treatment to date. With subsidence of symptoms and a partial or complete clearing of pus from the expressed secretions, massage may be discontinued. When it is necessary, the course may be repeated in six to eight weeks. It should be emphasized that when the seminal vesicles are infected massage of the prostate gland alone will never effect a "cure," even though such massage may afford the patient some temporary relief from symptoms. Massage must include the seminal vesicles if a prolonged effect is to be obtained.

A vigorous effort should be made to clear all foci of infection as completely as possible. Any urethral strictures or periurethral infiltrations should be dilated until a satisfactory channel is obtained. The use of hot sitz baths three or four times a day when practicable is an invaluable adjunct to the treatment in these cases. The value of chemotherapeutic agents and antibiotics is questionable. Their use does seem to speed the disappearance of pus from the expressed vesicular and prostatic secretions and at the same time frequently hastens the diminution of symptoms. However, recurrences after therapy are not infrequent, and the chief value of these agents is their ability to control acute or subacute episodes.

Hot rectal douches may be of some benefit in chronic cases but usually are not administered except in acute episodes. Antispasmodics for any associated urethritis or cystitis often afford some measure of symptomatic relief, and the proper use of sedatives (phenobarbital) in long-standing chronic cases is a wise measure.

In acute cases there should not be digital manipulation of the prostate or vesicles. Instrumentation through the urethra is also contraindicated except in one condition, acute urinary retention. The patient should be kept in bed and should be given sulfadiazine, penicillin, streptomycin or other agents, either singly or in combination. For practical purposes a combination of penicillin and sulfadiazine is given first and the results noted. Before administration of these drugs, any discharge from the urethra and of the urine is cultured. Any organisms which grow on the culture mediums are tested for sensitivity to streptomycin, aureomycin and

chloramphenicol. If there is no response to the penicillin and sulfadiazine therapy, then the agent most effective against the invading organism is used. Any frank suppuration should be evacuated by the most efficacious method.

The infection may subside completely or may become chronic. In the chronic phase, in addition to the treatment outlined previously the physician should make every effort to establish a proper attitude in the patient toward the disease. The recurrent character of this type of infection should be explained, and the patient should be instructed to return for additional treatment if his symptoms recur. This disease is probably not curable by present means of therapy, and the reasonable plan seems to be to keep the symptoms and the pus in the secretions at a minimum.

SURGICAL TREATMENT OF SEMINAL VESICULITIS

Operative intervention in cases of seminal vesiculitis should be considered only as a last resort, if at all. There are possibly three groups in which such a course could be considered: (1) in certain acute cases with gross suppuration in which all other forms of treatment have failed to bring about an adequate response, (2) in certain chronic cases in which there is decided perivesiculitis with associated scarring resulting in obstruction at the bladder neck or to the lower end of one or both ureters, and (3) in certain chronic cases associated with severe destruction or incapacitating arthritis. All other foci of infection must be eliminated, and pus-containing, obstructed or thickened vesicles must be present.

Vesiculectomy is the treatment of choice for the last two groups, because seminal vesiculotomy with curettage may leave infected tissue and thereby defeat the purpose of the operation. Vasotomy (scrotal vas) with injection of "healing agents" has its disciples, as well as injection of these substances through the ejaculatory ducts. These procedures may benefit an individual patient and could be tried before more radical procedures.

REPORT OF CASES

Abstracts of 5 cases of many seen within the past few years follow. The point in each is evident.

CASE 1—A man aged 32 for four weeks had had pain in the right lower abdominal quadrant. The previous diagnosis had been acute appendicitis, after appendectomy the symptoms remained. Genitourinary consultation three days postoperatively revealed right seminal vesiculitis. Treatment consisted in chemotherapy, hot rectal douches, antibiotics, massage (delayed) and hot sitz baths. Improvement occurred within three days. The symptoms subsided within seven days. There was no recurrence of symptoms after six months.

CASE 2—A man aged 35 for two and one-half years had had intermittent pain in the right upper abdominal quadrant, with eructation and nervousness. The previous diagnosis had been gallbladder dysfunction. He had received medical treatment and had been advised to have a cholecystectomy. The diagnosis after admission was seminal vesiculitis, right, and prostatitis. Treatment consisted in chemotherapy, antibiotics, massage and hot sitz baths. He experienced some relief of symptoms within a week, he was practically symptom free at the end of five weeks.

CASE 3—A man aged 33 for nine months had had pain in the right flank radiating to the right lower abdominal quadrant, pain in the lower extremities, occasional dysuria, frequency and passage of bloody shreds. Bloody ejaculations had occurred on two occasions. The previous diagnoses had been renal lithiasis (no roentgen ray evidence) and cystitis. Previous treatment consisted in chemotherapy and ureteral dilatations. The latter caused an aggravation of symptoms. The diagnosis

after admission was prostatovesiculitis. Use of chemotherapy, antibiotics, massage and hot sitz baths resulted in diminution of symptoms after two weeks. The man was symptom free in three months.

CASE 4—A man aged 25 for two years had had dysuria, frequency and passage of small bloody shreds, with pain in the left flank. The previous diagnosis was not known. A left nephrectomy had been performed. (The patient had been told that he had hematoma of the kidney, although injury or gross hematuria was not experienced.) No relief of symptoms followed the operation. The diagnosis after admission was bilateral seminal vesiculitis, more severe on the left. Treatment with chemotherapy, antibiotics, massage and hot sitz baths resulted in cessation of pain within ten days and clearing of secretions in three weeks.

CASE 5—A man aged 24 for three months had had bilateral flank pain, suprapubic pain, a feeling of fullness in the perineum and aching of testicles. The previous diagnosis had been psychoneurosis—because urograms were interpreted as normal and urine was normal. Psychotherapy had been given. The diagnosis after admission was seminal vesiculitis, bilateral. Chemotherapy, antibiotics, massage and hot sitz baths resulted in dramatic relief of symptoms after stripping of the vesicles. The patient was symptom free within two weeks.

SUMMARY

1 Seminal vesiculitis is much more common than is supposed.

2 Anatomically there is a close approximation between the seminal vesicles and the vasa deferentia, ureters, urinary bladder and prostate gland. Therefore any significant infectious process within or around the vesicles will probably affect the contiguous structures to some degree.

3 This infection often produces a symptom complex which is varied and confusing to the unwary examiner. Urinary symptoms (frequency, dysuria) may be noticeable, or sexual disturbances (change in libido, bloody or painful ejaculations) may dominate the picture. Some type of pain is the rule, however, its location varies.

4 Pain may be local or referred. The referral areas for the usually involved structures include the tenth dorsal vertebra through the first lumbar vertebra and the first sacral vertebra through the fifth. Pain referred to these areas simulates disease of the kidneys, ureters, urinary bladder, gallbladder, appendix, gastrointestinal system and lower extremities.

5 Diagnosis of seminal vesiculitis is most usually made from the positive findings discovered by palpation of the vesicular areas during rectal examination and microscopic examination of the expressed secretions. At times, endoscopy and seminal vesiculography are useful. The history may be suggestive.

6 Treatment includes proper massage of the prostate and vesicles in chronic conditions but never in the acute phase, use of chemotherapeutic agents and antibiotics, particularly in the acute cases, use of hot sitz baths, or hot rectal douches when the patient is bedridden, judicious use of sedatives and antispasmodics, management of any associated conditions (e.g., dilatation of urethral strictures), rarely, surgical intervention in isolated cases, and elimination of focal infection.

7 It is hoped that this manuscript has helped to focus attention on the fact that there are such structures as seminal vesicles and that infectious involvement of them is frequently productive of a symptom complex which has led many a patient to lose his appendix, kidney or gallbladder, or to be treated by medical means for disease of these and other organs.

8 Abstracts of 5 cases of many seen within the past few years have been reported.

TREATMENT OF CHOICE IN BARBITURATE POISONING

Series of Twenty-Nine Cases of Barbiturate Poisoning Treated with Pentylenetetrazole (Metrazol®) and Supportive Therapy

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In a series of 29 cases of barbiturate poisoning observed on the medical service of the Knickerbocker Hospital, the treatment of choice proved to be pentylenetetrazole (metrazol®). In spite of increasing difficulties that various state and local laws have placed in the way of persons desirous of obtaining barbiturates, these drugs are still, as a group, among the poisons most commonly used with suicidal intent. Sollman¹ stated that only carbon monoxide is more commonly used, as one seventh of all cases of poisoning (excluding those due to carbon monoxide) treated in hospitals of the large cities of the United States in recent years were due to barbiturates. Goldstein² placed this figure even higher, stating that one fifth of drug-poisoning cases in fourteen hospitals having a total admission rate of 1,060,275 patients during 1940 to 1945 was due to barbiturates. Over one and one-quarter billion grams (75 million grams) of the barbiturate drugs are sold to 140 million inhabitants of the United States yearly, according to Engstrand and Hruza³, hence, it is not surprising to note a decided increase in the death rate from these drugs. The number of deaths in the United States for the years 1943, 1944 and 1945 (454, 520 and 795, respectively) demonstrates the increasing seriousness of this problem. In New York City in 1945 there were 197 deaths as contrasted to 42 deaths in 1939, according to Billow⁴ and data from the Medical Examiners. This is an increase of 400 per cent.

The amount of barbiturate drug necessary to induce death varies widely according to a person's susceptibility. However, Purves-Stewart and Willcox⁵ noted that an average minimal fatal dose of barbital is about 50 grains (3.24 Gm.), although death has occurred after a dose of only 15 grains (0.97 Gm.). Willcox⁶ further stated that he has seen prolonged coma, urinary suppression and bronchopneumonia following what is ordinarily a normal dose of 3 grains (0.19 Gm.) of pentobarbital sodium. Death as a rule is due to respiratory failure. Goodman and Gilman⁷ stated that large doses of barbiturates are directly depressant to the medullary respiratory centers. In addition, pulmonary edema and hypostatic pneumonia are common complications leading to an increased mortality rate.

The treatment of barbiturate poisoning has long been unsatisfactory, although a wide variety of drugs such as caffeine, strychnine, calcium gluconate, picrotoxin, amphetamine, sodium succinate, ephedrine and pentylenetetrazole (metrazol®) have been used as antagonistic agents. The principal means of elimination of the drugs from the body is the kidneys, but depression engendered

For presentation before members of the Knickerbocker Hospital staff in December 1949.

¹ Sollman, T. A Manual of Pharmacology and Its Applications to Therapeutics and Toxicology, ed. 7, Philadelphia: W. B. Saunders Company, 1948.

² Goldstein, S. W. J. Am. Pharm. A. (Scient. Ed.) 38: 5, 1947.

³ Engstrand, O. J. and Hruza, W. W. Journal of the American Medical Association 138: 59, 1949.

⁴ Billow, B. W. J. Lab. & Clin. Med. 29: 265, 1944.

⁵ Purves-Stewart, J., and Willcox, W. Lancet 1: 6 and 500, 1934.

⁶ Willcox, W. Proc. Roy. Soc. Med. 27: 489, 1934. Brit. M. J. 1: 415, 1934.

⁷ Goodman, L., and Gilman, A. The Pharmacological Basis of Therapeutics. New York: The Macmillan Company, 1941.

by the drug tends to suppress formation of urine or materially to decrease it. These antagonistic drugs are used to hasten oxidation and detoxification of the barbiturates in the body as well as to increase urinary secretion.

As generally written (Cushny⁸ and Goodman and Gilman⁹) and as taught by many medical schools, picrotoxin has been assumed to be the drug of choice in treatment of barbiturate poisoning, although it is always labeled as "dangerous" if not used properly. Boyd¹⁰ stated that picrotoxin might even hasten death in severe cases if not properly used. Pentylenetetra-

were subdivided into two groups so that, although all patients were in coma and definitely poisoned, the value of treatment with pentylenetetrazole could be demonstrated on the 13 completely areflexic patients forming the first group. The second group of patients in whom reflexes were obtainable was divided still further, 5 were treated with pentylenetetrazole and the other 11 with various drugs for comparison. Several papers have been written on this subject, but seldom is any distinction made between the two types of cases although obviously the treatment and prognosis varies decidedly.

TABLE 1—*Acute Cases with Complete Areflexia Treated with Pentylenetetrazole*

Case	Age	Sex	Drug When Known	Dose (Mg.)	Hr. to Rx.	Light Reflex	Condition of Pupil	Corneal Reflex	Pentylenetetrazole Cc	Caffeine (Gm.)	Other Drug	Gavaged	Infused Cc	Oxygen	Hr. to Consciousness Under Therapy
1*	68	M	Barb			None	Dilated	None	304		50 mg picrotoxin	No	1 000	Yes	13
2	34	F	Seconal†	?	?	None	Constr.	None	100			No	1 000	No	60
3	25	F	Barb	?	?	None	Constr.	None	5			No	1 000	Yes	72
4	35	F	Seconal†	?	?	None	Constr.	None	109.5	0.5		No	1 000	Yes	44
5	52	M	Amobarbital sodium and possibly morphine	?	?	None	Constr.	None	130			No	1 000	Yes	5
6	50	F	Seconal†	1 800	11	None	?	None	73			No	1 000	No	20
7	7 days	M	Seconal†	360	11	None	Dilated	None	2.5†			Yes	No	No	4
8	53	F	Barb	?	1	None	Dilated	None	127			No	No	No	27
9	59	F	Phenobarb and bromides	?	Over 24	None	Dilated	None	118	1	2 grains (0.13 Gm.) aminophylline	No	No	No	77
10	34	F	Barb	?	?	None	?	None	116			No	No	Yes	40
11	55	M	Pentobarb	2 000	1	None	Constr.	None	48	1		No	No	Yes	9
12	34	M	Barb and alcohol	?	8	None	Constr.	None	35			No	1 000	No	13
13	35	F	Seconal†	1 080	12	None	?	None	0		12 mg picrotoxin	No	No	No	12

* Patient died. † United States trademark registered.

† Received 1 cc by intramuscular injection and 1 cc via stomach tube.

TABLE 2—*Moderate Cases with Reflexes Obtainable and Treatment with Pentylenetetrazole*

Case	Age	Sex	Drug When Known	Dose (Mg.)	Hr. to Rx.	Light Reflex	Condition of Pupil	Corneal Reflex	Pentylenetetrazole Cc	Caffeine (Gm.)	Other Drug	Gavaged	Infused Cc	Oxygen	Hr. to Consciousness Under Therapy
14	23	M	Seconal*	1 500	6	Yes	Constr.	Yes	90			Yes	No	Yes	6
15	34	F	Seconal* and alcohol	1 080	1	Yes	?	Yes	1			No	No	No	4
16	33	F	Seconal	5 100	1/2	Yes	?	Yes	5	1.5		Yes	No	No	1/2
17	27	F	Seconal* and pentobarb	2 000	4	Yes	Constr.	Yes	40			No	1 000	No	66
18	45	M	Pentobarb	?	36	Yes	Normal	Yes	54			No	1 000	Yes	43

* United States trademark registered.

zole is the other analeptic usually mentioned but not emphasized.

At the Knickerbocker Hospital in New York City we have had occasion to treat over 40 patients with barbiturate poisoning between 1944 to 1949 and have devised a system using pentylenetetrazole and supportive measures that we consider safer and more effective than any other type of treatment. Not only is the drug always readily available to any physician, but we believe that we have had more successful results in the use of pentylenetetrazole as will be demonstrated in the following series of 29 cases. These cases

There were 20 females as against 9 males in this series of cases. One of the males was a 27 day old infant whose mother tried to commit infanticide and suicide; hence, for statistical purposes this case is not included further in this paper. It is a safe assumption that approximately 2 women to 1 man attempt suicide in this manner.

Age factors appear significant in this series. The average age of these patients was 40.98 years, with the men averaging 42.5 years as against 40.35 years for the women. However, there was a wide range extending from 23 to 66 years in both groups. Eleven of the patients were in their thirties, and apparently the majority of the patients attempted suicide at this age. The menopause and climacteric both come at a con-

⁸ Cushny, A. R. Pharmacology and Therapeutics, ed. 13, edited by A. Grollman and D. Slaughter, Philadelphia: Lea & Febiger, 1947.
⁹ Boyd, E. M. Canad. M. A. J. 64: 442, 1946.

siderably later age in this hemisphere, on an average, and apparently have little bearing on this type of suicidal attempt (Crossen and Crossen¹⁰ and Cecil¹¹).

The variety of drugs used in suicidal attempts indicates the need for even closer enforcement of present laws. In these 29 cases the more common barbiturates were used: seconal sodium® (sodium 5-allyl-5-[1-methylbutyl]barbiturate), pentobarbital sodium and phenobarbital. Dosages varied widely from as little as 0.36 Gm of seconal sodium® to as much as 20.0 Gm of pentobarbital sodium in the severe group. In many instances we were unable to determine exact amounts or type of barbiturate taken, as the patients were under such emotional stress that they merely took "a lot of sleeping medicine" without pausing to estimate amounts.

The time interval between ingestion of the drug and institution of treatment varied widely, in many cases the patient was not found immediately. Once he was found, in a matter of minutes the patient was in the hospital and receiving treatment as a result of an

average of 30.4 hours, whereas in the milder cases treatment averaged 24.24 hours before consciousness returned. The longest wait before attaining this result was seventy-seven hours in 1 patient. All the patients attained consciousness, even though 3 of them ultimately expired from complications. Two of the severely poisoned patients were known to have cardiac disease (cases 1 and 13), and ultimately they died, in case 1 an hour after becoming conscious or thirteen hours after treatment was started. Patient 13 expired twelve hours after treatment was started, one hour after becoming conscious. Both had acute congestive failure of the heart after receiving picrotoxin. Patient 8 responded after twenty-seven hours but ultimately died after forty-four hours with an aspiration type of bronchopneumonia. In addition to these 3 fatalities we had 4 with bronchopneumonia, 1 in the severe group on admission and 3 in the less severe groups. All these patients recovered. Thus our mortality rate was 10.7 per cent, although the patients with severe complications comprised 32 per cent of the total.

TABLE 3—*Moderate Cases with Reflexes Obtainable and Treatment with Various Drugs*

Case	Age	Sex	Drug When Known	Dose (Mg)	Hr to Rx	Condition of Pupil	Corneal Reflex	Drug, Cc	Caf felene (Gm)	Other Drug	Gavaged	Infused, Cc	Oxygen	Time to Consciousness Under Therapy
19	50	F	Barb	?	?	Mod dilated	Yes	2 ml ketamide	0.5		No	No	No	10 min
20	25	F	Phenobarb	300	?	Dilated	Yes	0	1		Yes	No	No	2 hr
21	49	F	Phenobarb	Over 720	0	Dilated	Yes	2 ml ketamide 6 mg strychnine	5		No	1,000	No	48 hr
22	62	F	Phenobarb	1,040	?	Dilated	Yes	0	3		No	No	No	30 hr
23	38	F	Phenobarb	?	Over 6	Dilated	Yes	1 ml ketamide			No	1,000	No	24 hr
24	32	M	Barb	?	?	?	Yes	4 ml ketamide	4.0	12 mg picrotoxin	Yes	No	No	7 hr
25	66	F	Phenobarb	1,350	?	?	?	2 ml ketamide	1	12 mg picrotoxin	No	1,000	Yes	12 hr
26	38	F	Pentobarb	?	?	Dilated	Yes	1 ml ketamide 5 pentylene tetrazole	2.0	21 mg picrotoxin	Yes	No	Yes	31 hr
27	48	F	Phenobarb	?	?	Constr	?	0		18 mg picrotoxin 2 mg strychnine	Yes	No	No	90 hr
28	41	M	Phenobarb	?	12	Constr	?	2 ml ketamide		18 mg picrotoxin	No	1,000	Yes	48 hr
29	42	F	Barb	?	?	Dilated	?	40 pentylene tetrazole		90 mg picrotoxin 6 cc amobarbital sod	Yes	1,000	No	2 hr 47 min

excellent cooperative service between the police and ambulance service in New York City. The range of the interval before treatment began in severe cases was thirty minutes to over twenty-four hours, while in less severe cases it was as high as thirty-six hours.

In all these cases there was coma, but for purposes of treatment it was decided to use the various reflexes as a guide to the depth of anesthesia. Because the light and corneal reflexes are the most readily observable and most reliable, these were used. They are also the last to disappear when pharmacologic depression is due to overdosage of barbiturates. We found dilatation and constriction of the pupils to be of little diagnostic value, although in general the more severely poisoned patients were apt to have constricted pupils. Seven of the severely ill patients had constriction as against four with dilatation, whereas in the less severe group this was reversed, 5 having dilatation as against 4 with constriction of the pupils.

For comparison we defined consciousness as a complete return of all reflexes and the ability of the patient to respond orally to external stimuli. To attain this state the more severely ill patients were treated an

Only 1 patient admitted having previously attempted suicide (case 10), she admitted three previous attempts. It was our impression, however, that in several cases this was not a first attempt at self extermination. Invariably the patient with barbiturate poisoning has a lowered blood pressure, is in a state of shock and some times (7 of the 13 severe cases) has pulmonary edema. Usually the patient is flushed and manifests some cyanosis. Unless there is a clearcut history available, the first step after the patient has been placed in bed should be a routine urinalysis for barbituric acid derivatives (Gradwohl¹²). It is well to leave the catheter indwelling to estimate further excretion rates. Thus the diagnosis is definitely established and other conditions eliminated as a cause of coma. While this is being done oxygen under pressure (Burstein and Rovenstine¹³), external heat, and, depending on whether or not pulmonary edema is present, shock blocks can be used. If the patient has pulmonary edema he should be kept in Fowler's position, but if he is in shock without such edema, the head may be lowered.

As soon as the diagnosis of barbiturate poisoning is established antagonistic drugs are administered. We prefer pentylenetetrazole for this purpose because it is

10 Crossen, H. S., and Crossen, R. J. *Diseases of Women*, ed 9, St. Louis, C. V. Mosby Company, 1941, p. 820.

11 Cecil, R. L. *A Textbook of Medicine*, ed 5, Philadelphia, W. B. Saunders Company, 1940.

12 Gradwohl, R. B. H. *Clinical Laboratory Methods and Diagnostics*, ed 3, St. Louis, C. V. Mosby Company, 1943, vol 2, p. 1632.

13 Burstein, C. L., and Rovenstine, E. A. *Am J Surg* 43: 26, 1952.

comparatively speaking, a safe drug, 5 cc is given the patient intravenously, followed by 10 cc intravenously in fifteen minutes, unless reflexes return. Then we advise giving 20 cc intravenously every thirty minutes until reflexes do return. Small doses thereafter can be given intramuscularly until full consciousness of the patient is restored. Pentylenetetrazole is a stimulant almost as powerful as picrotoxin, but its action is not prolonged clinically. There is no latent period in its usage, and maximum effect is almost immediately obtained (Walker and Teague¹⁴). We believe that this eliminates to a large extent the danger of overdosage and resultant convulsions always present with picrotoxin and seen by us in case 1 (table 1) terminally, when picrotoxin was employed as an adjunct. In no case was there any evidence of convulsion when only pentylenetetrazole was used. This drug also acts only briefly and is eliminated in thirty to sixty minutes, probably being detoxified by the liver. Thus one may give large doses at thirty minute intervals without danger to the patient from cumulative effect (Goodman and Gilman⁷).

Pentylenetetrazole has long been used for shock treatment (3 to 8 cc [Noyes¹⁵]) of psychotic patients to induce so-called "shocks" to the central nervous system and decided spasms of the erector spinae muscles, but use of the drug is now frequently replaced by electric shock methods. However, it must be remembered that pentylenetetrazole is almost a direct antagonist of the barbiturates and therefore safe to use in much greater dosage in these cases than in a physiologically normal person. In the event that less than twenty-four hours has elapsed since the beginning of treatment the patients must be watched carefully to prevent their relapse into coma. This was seen on several occasions as a result of gradual detoxification and elimination of slowly absorbed barbiturates.

Lavage and purgation are almost always mentioned (Reifenstein¹⁶) and frequently used in treatment of patients with barbiturate poisoning. However, it is our belief that any patient in coma subjected to this treatment runs a definite risk of hypostatic pneumonia, and we do not advise it for this reason. It is also of questionable value when a long time has elapsed between ingestion of the drug and treatment.

If there is neither cardiac involvement nor pulmonary edema, isotonic sodium chloride solution is used intravenously to combat dehydration always present in coma of long standing due to toxicity. If pulmonary edema is present hypertonic dextrose solutions given slowly by the intravenous route are not contraindicated, although the saline solution should not be used. Hypertonic dextrose solutions work three ways: (a) to induce diuresis, (b) to dehydrate the brain, and (c) to aid in dehydration of pulmonary edema. However, it must be borne in mind that it is as easy for one to "drown a patient internally" by giving too much fluid too rapidly intravenously as it is for the patient to die as the result of the overdose of barbiturates. As a standard we give the patient a maximum of 2 liters of fluid in the first twelve hours and maintain a close check on the urinary output as a partial guide to further therapy.

Antibiotics and intratracheal intubation done by a trained anesthetist are also adjuncts which may be indicated and are of great value in combating the com-

plications of hypostatic pneumonia, which is common in these patients. Our one patient (case 8) who died with pneumonia was treated before antibiotics came into general use, but since their advent no more deaths have been due to this complication. Left ventricular failure with symptoms of acute congestive heart failure must be carefully watched for and promptly treated. Our failure to do this may have been a contributing cause to the loss of two patients (cases 1 and 14). In later cases prompt treatment of this complication resulted in complete recovery of the patient (1 e, cases 3 and 25).

Groups 2 and 3 include those patients who although in coma were in a less serious condition clinically as manifested by the presence of various reflexes. Patients in group 2 were treated with Pentylenetetrazole, while those in group 3 received various types of accepted treatments, the last 5 being given picrotoxin. Compared to the more seriously ill patients in group 1, in whom the average duration of coma after treatment was thirty hours, patients of groups 2 and 3 responded in twenty-four hours. In many instances this period might have been appreciably lessened had the patient been brought to us sooner, for the tendency seemed to be for less seriously ill patients to wait longer before seeking medical aid, probably because the families of the patients dreaded the social stigma ascribed to attempted suicide. There also enters the factor of susceptibility, and presumably many of these patients were less susceptible than usual to the barbiturates, as many had ingested large amounts of the drugs and were still in relatively good condition. In group 2 the patients treated with pentylenetetrazole responded in twenty-five hours, whereas those treated with picrotoxin (cases 23 to 28 inclusive, table 3) required an average of twenty-seven hours to respond. This is not a significant difference, there is little to choose between action of drugs, although we consider pentylenetetrazole the safer of the two.

SUMMARY

We have reviewed a series of 29 cases of barbiturate poisoning treated between the years 1945 and 1949. For the purposes of evaluating therapy we have divided our cases into two major groups. The first group included patients in a critically deep stage of anesthesia, having no reflexes on admission. The second group included patients who were in coma but in a light state of anesthesia, having corneal and other reflexes when first examined.

We have described the routine therapy and results for all these cases and have included a recommended course of treatment as applied to three groups of patients totaling 29 cases and a comparison of two of the most powerful analeptic drugs, namely, picrotoxin and pentylenetetrazole.

The treatment of patients with this type of poisoning has been unsatisfactory in the past, as witness the large group of recommended types of treatment with various antagonistic drugs. There has been an increasing number of deaths ascribed to barbiturate poisoning and a lack of generally disseminated information on this subject, we believe that many lives can be saved by a proper course of treatment vigorously applied.

CONCLUSIONS

1 Attempted suicide by use of barbituric acid derivatives has decidedly increased in the past few years, particularly in urban sections, the increase in New York City alone being 400 per cent in five years' time to 1945.

¹⁴ Walker R. H. and Teague F. B. *Virginia M. Monthly* 69: 92, 1942.

¹⁵ Noyes A. P. *Modern Clinical Psychiatry* ed 2 Philadelphia W. B. Saunders Company 1939.

¹⁶ Reifstein E. C. Jr. *Ann. Int. Med.* 13: 1013, 1939.

2 The control of distribution of barbiturate drugs is apparently faulty, as one may judge from the increasing number of deaths in a five year period. More vigorous enforcement of present laws is necessary.

3 In an estimation of the therapeutic drug of choice the depth of coma should be determined. Coma should be defined in relationship to reflexes so that experimental work may be accurately compared.

4 Supportive therapy plays a prominent role, as does early and adequate treatment of complications. In this series it is conceivable that with more experience we would not have lost any patients.

5 Lavage is contraindicated in the course of treatment unless a patient is fully conscious, otherwise, hypostatic pneumonia is likely to occur.

6 Intravenous fluid therapy used too vigorously puts an added strain on the cardiovascular system and is to be deplored. However, it is a useful adjunct to elimination of the barbiturate drug when properly used.

7 Pentylenetetrazole (metrazol[®]) is a relatively safe drug to use in large quantities and can prevent many deaths as the result of poisoning with barbituric acid derivatives if so used. Further, it can be used by any physician anywhere for immediate relief until the patient can be transported safely to a hospital where further treatment can be instituted.

8 We used pentylenetetrazole in large dosage as the analeptic of choice in 17 of 29 cases of barbiturate poisoning, there were no deaths due solely to drugs.

RUPTURE OF PULMONARY ANEURYSM ACCOMPANYING PATENT DUCTUS ARTERIOSUS

Occurrence in a 67 Year Old Woman

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The rupture of a pulmonary aneurysm has been infrequently reported. More unusual is its occurrence secondary to patent ductus arteriosus in a patient who is beyond the age of 67. The concomitant finding of a dissecting aneurysm of the thoracic aorta is of extreme interest. This combination of major vascular lesions is most unusual and warrants presentation.

REPORT OF CASE

The patient was a 67 year old white woman who was admitted for the last time to Milwaukee County General Hospital on Sept 5, 1943 with headaches, mental confusion and severe bouts of dizziness of about twenty-four hours' duration. Past history revealed that the patient had been known to be hypertensive since 1928, at which time she had first had headaches and dizzy spells. Since 1934 she had been observed in the Out-Patient Medical Department of the Milwaukee County Dispensary, where she had been treated for benign hypertension.

Her first admission to the Milwaukee County General Hospital was in February 1940, at which time she had severe, aching substernal pain radiating into both shoulders and arms and persisting for five hours. Physical examination revealed the following conditions: blood pressure was 240 systolic and 110 diastolic, pulsations in the four extremities were equal, supra-cardiac dulness was increased to the right and left of the sternum in the second intercostal space, the cardiac dulness

was present to the anterior axillary line in the fifth and sixth interspaces, there were grade 3 systolic and mid diastolic murmurs heard best over the second left intercostal space and palpable systolic and diastolic thrills were elicited in the same area. Fluoroscopic examination revealed enlargement of the entire heart and aorta, with aneurysmal dilatation of the pulmonary artery. An electrocardiogram revealed myocardial damage on the basis of changes compatible with a left ventricular strain pattern.

Between 1940 and the final admission in September 1943 the patient had been readmitted to the hospital on six different occasions with essentially the same symptoms, headache, dizziness, nausea and precordial pain. In March 1943 she had a temporary loss of vision in the right eye due to a massive hemorrhage into the fundus of this eye.

Physical examination on final admission revealed a confused, disoriented woman who lay flat in bed without respiratory distress. Her temperature was 98 F, pulse rate 120 per minute, respiratory rate 28 per minute and blood pressure 180 systolic and 100 diastolic. Funduscopic examination revealed the retinal arteries to be moderately thinned and tortuous, exhibiting an increased light reflex. There was moderate arterial venous nicking. Cardiac examination revealed the apical impulse to be forceful and palpable 16 cm to the left of the sternum in the sixth intercostal space. A systolic and diastolic thrill was felt in the second left intercostal space. Cardiac dulness was increased to the right and left of the sternum in the same area. Systolic and diastolic murmurs were audible over the entire precordium but were maximum at the second left interspace. The liver was palpable 3 fingerbreadths below the right costal margin. Its edge was smooth and nontender. The patient's course during hospitalization remained static until the twenty-third day, when she was found in a shocklike state and did not respond to emergency therapy. Death ensued six hours later.

Autopsy Observations—On September 30 an autopsy was performed and the following anatomic diagnoses were made: (1) persistent ductus arteriosus [Botallo's duct] with rupture and dissection of the wall of the aorta down to and including its bifurcation, (2) dilatation of the pulmonary artery with rupture of the left branch of the pulmonary artery at the hilus of the lung, and (3) hemorrhagic dissection and diffuse infiltration with blood of the pleural, pericardial structures of the mediastinum. Reflection of the breast plate showed the soft tissues of the anterior mediastinum to be deep blue. This color extended to the base of the neck involving the soft tissues anteriorly and laterally around the great vessels. The discoloration was produced by an accumulation of blood between the pericardial pleural soft tissues. The anterior portion of the pericardium was similarly discolored. On the left side of the mediastinum the discoloration was pronounced, and there was a thick accumulation of blood beneath the pleura at the hilus of the lung. This extended along the left main bronchus and the left branch of the pulmonary artery and vein to the mediastinum and caudad along the left surface of the aorta and esophagus. When the pericardial sac was opened, the parietal pericardium was found to be free and the pericardial cavity did not contain blood. The heart measured 11.5 by 12.5 by 10 cm. The wall of the left ventricle measured 22 mm in thickness at the base and 12 mm at the apex. The mitral leaflets showed decided basilar calcification in the form of a ring which measured 12 mm in thickness. This involved all the posterior cusp and about one third of the anterior cusp. The basilar portions were also granular on both the auricular and ventricular aspects. The mitral ring was 7 cm in circumference. Above the anterior mitral cusp there were grayish-yellow calcific deposits extending upward on the endocardium of the auricle. This patch measured approximately 20 by 8 cm. The tricuspid leaflets were opaque but were rather soft and pliable. The tricuspid ring measured 7.5 cm in diameter. The pulmonary cusps were thickened and granular on the surface and were practically opaque. The commissures were irregular in formation. The left lateral cusp was separated from its adjacent cusp by 3 mm. The posterior and right lateral cusps did not have a commissure, but at the base there were two fibrous strands, about 7 mm in length, which extended to the wall of the pulmonary artery. The free margins of these two cusps

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were rounded and thickened. Both the ventricular and pulmonic aspects of the cusps were granular. The pulmonary artery measured 135 cm in circumference just proximad to its bifurcation. In front of and above the bifurcation of the pulmonary artery there was a nipple-like projection which extended 5 mm. into the lumen and measured 6 mm. across the base. This had two openings, the largest measured approximately 25 mm. and the smaller 1 mm. There was direct communication through these openings with the aorta (figs 1 and 2). On the aortic aspect there were dense calcifications around this opening and part of the intima was eroded and granular. The calcified plaques surrounding the ostium measured 3 cm. in diameter. The left branch of the pulmonary artery at the hilus was decidedly thinned, and there were two rents found in the anterior superior wall (fig 2). The largest measured about 15 mm. and the smallest approximately 6 mm. From this area there extended a rather dense accumulation of blood involving all the mediastinal structures. It dissected around the hilus of the left lung and continued downward along the descending aorta. It also extended across the anterior portion of the great vessels of the neck and was found between the pleura and the pericardial layers on both sides of the mediastinum, as was previously described. The aortic ring measured approximately 75 cm. The ascending portion of the aorta measured about 9 cm. in circumference. The aortic cusps were thickened, partially calcified and completely opaque. The sinuses of Valsalva were moderately shortened. The aortic aspect of the sinuses revealed yellowish granular calcific material. The commissures were rather heavy but remained intact. The coronary orifices were open. The major portion of the internal surface of the aorta was covered by rather dense and large atherosclerotic plaques. In the descending aorta there was a dissecting aneurysm that extended to the bifurcation. It extended for 25 cm. along the left renal artery, producing a definite narrowing of its lumen. The dissection involved the media and the new channel was filled with partially organized clot. At the arch the dissection was not as extensive, and the layers were separated by a thin layer of clot. At the tract which communicated with the aorta and the pulmonary artery this dissection of the aorta stopped and there was organized clot on the superior surface. The internal surface of this tract was irregular and calcified.

COMMENT

The case described involves an extremely unusual combination of vascular lesions. The following aspects, any one of which would in itself be considered a rarity, are worthy of report: (1) patent ductus arteriosus in



Fig 1—Aortic opening of the patent ductus arteriosus

an elderly person, (2) aneurysm of the pulmonary artery and death due to rupture of that aneurysm, and (3) dissecting aneurysm of the thoracic and abdominal aorta. Patent ductus arteriosus is not an uncommon congenital vascular defect. However, it is infrequently found in elderly patients. To the best of our knowledge there have been only 5 cases reported in which the

patient was beyond the age of 65 years. In 2 of these 5 cases there had existed a pulmonary aneurysm. The first was reported by Josephson¹ in 1897, the second by Storch² in 1899, the third by Weischer³ in 1904 (this case being perhaps the oldest on record, that of a woman age 82 years), the fourth by White⁴ in 1928



Fig 2—Rent in the aneurysm of the pulmonary artery

and the fifth by Brody and Randall⁵ in 1935. The patient in the case just reported is the sixth over the age of 65 years.

Aneurysm of the pulmonary artery is likewise extremely rare. Boyd and McGavack⁶ found no examples in 37,757 consecutive autopsies. Johannsen and Connor⁷ found only 1 instance in 28,180 autopsies at the Bellevue Hospital between 1905 and 1943. The former authors had found 139 cases up to September 1939, with an antemortem diagnosis in 28, and added 2 cases of their own with antemortem diagnosis. They stated that congenital anomalies are present in 66 per cent of these patients and are etiologically important in 43.2 per cent, and that in 23 per cent of cases a patent ductus arteriosus is present. Other factors of etiologic significance are stated by them to be nonspecific pulmonary arteriosclerosis in 23 per cent and syphilis of questionable significance in 31.7 per cent. Deterling and Clagett⁸ have brought up to date the number of cases of aneurysm of the pulmonary artery in a review presented in 1947. This review is comprehensive and adds 36 cases of aneurysm of the pulmonary artery proved by necropsy, bringing the total of authentic cases proved by necropsy to 147. They likewise concluded that patent ductus arteriosus is present in more than 20 per cent of cases. We have made a comprehensive review of the literature and have found 29 cases of pulmonary aneurysm in conjunction with

1 Josephson A. *Offenstehender Ductus Botalli nebst Atherom in den Asten der Arteria pulmonalis*. Nord. med. Ark. Stockholm no 10 1897 p 1.

2 Storch E. *Ueber Zwei Falle von Lungenarterien aneurysma*. Breslau 1899.

3 Weischer P. *Ueber die Aneurysmen des Arteria pulmonalis*. Wurzburg. T. Scheiner 1904.

4 White P. D. *Patent Ductus Arteriosus in a Woman in Her Sixty Sixth Year*. J. A. M. A. 91: 16 (Oct 13) 1928.

5 Brody J. G. and Randall A. *Patent Ductus Arteriosus Case Report of a Woman Sixty Five Years Eleven and One Half Months of Age*. Ohio State M. J. 31: 599 1935.

6 Boyd L. J. and McGavack T. H. *Aneurysm of the Pulmonary Artery. A Review of the Literature and Report of Two Cases*. Am. Heart J. 18: 562 1939.

7 Johannsen M. W. and Connor C. A. R. *Cor Pulmonale with Bilateral Aneurysms of the Pulmonary Artery. Interventricular Septal Defect. Patent Ductus Arteriosus and Terminal Azygos Disease (Syndrome)*. Ann. Int. Med. 18: 232 1943.

8 Deterling R. A. Jr. and Clagett O. T. *Aneurysm of the Pulmonary Artery. Review of the Literature and Report of a Case*, Am. Heart J. 34: 471 1947.

J. A. M. A.
July 1, 1944

patent ductus arteriosus The case just presented brings the total to 30 cases, which are summarized in the accompanying table⁹ The symptoms attributed to pulmonary aneurysm by Boyd and McGavack⁶ and

by Deterling and Clagett⁸ are palpitation, dyspnea, cyanosis, pain and cough Cyanosis and edema are usually described as late manifestations and as dependent on the degree of cardiac failure Cyanosis was

Data on Thirty Cases of Pulmonary Aneurysm with Patent Ductus Arteriosus (Open Botallo's Duct)

Case	Year	Source	Age	Sex	Description of Aneurysms Size, Type Site*	Other Cardiovascular Findings at Autopsy†
1	1878	Buchwald ⁹¹	17	F	On trunk, size of large egg	P.D.A. endocarditis of pulmonary and mitral valves
2	1883	Foulis ⁹²	22	F	On trunk size of walnut	Vegetations around Botallo's duct P.D.A. syphilis of the endocardium on pulmonary and aortic valves
3	1890	Williams ⁹³	40	M	Fusiform, on trunk	P.D.A., tuberculosis of lungs
4	1893	Kidd ⁹⁴	22	M	On left inferior branch and on Botallo's duct, size of nut	P.D.A. with vegetation endocarditis (endarteritis) tuberculosis of lungs
5	1892	Sachs ⁹⁵	21	F	Two, fusiform, one on left branch one on side of right branch	P.D.A., septic endarteritis of pulmonary artery
6	1893	Hebb ⁹⁶	40	M	Saccular on trunk and right branch	Atheroma of pulmonary artery and aorta, syphilis aneurysm size of turkey egg, P.D.A. with aneurysm size of walnut, cardiac hypertrophy
7	1896	Borgherini ⁹⁷	46	M	Sacciform, on trunk near atrium, 15 cm in diameter	P.D.A. 2 pulmonary cusps mitral stenosis
8	1899	Storch ⁹⁸	73	F	Fusiform on trunk 8.5 cm in diameter	P.D.A., syphilis of the heart
9	1900	Gibson ⁹⁹	31	F	On trunk, enormous with thin wall	P.D.A.
10	1904	Welscher ¹⁰⁰	82	F	Sacciform, on trunk 15 cm in diameter	P.D.A. stenosis of pulmonary atrium, syphilis of the aorta
11	1904	Zuber ¹⁰¹	5	M	Fusiform, on trunk	P.D.A. 4 valves on pulmonary atrium
12	1905	Lissauer ¹⁰²	24	M	On trunk, size of large egg	P.D.A. with aneurysm stenosis of pulmonary artery and aorta
13	1906	Terplan (cited by Henschen) ¹⁰³	35	M	Near opening of Botallo's duct, size of egg	P.D.A. with vegetation septic endocarditis
14	1907	Scheel ¹⁰⁴	28	F	Sacciform, on trunk calcification of wall	P.D.A.
15	1908	Durno and Brown ¹⁰⁵			Fusiform dissecting, pronounced sclerosis	P.D.A.
16	1908-1909	Cautley ¹⁰⁶			Fusiform on trunk, mostly filled with thrombi	P.D.A.
17	1911	Entz ¹⁰⁷			Fusiform, on trunk	P.D.A.
18	1924	Terplan ¹⁰⁸	55	F	Circumscribed, on trunk	P.D.A., streptococcal endocarditis, polypous thrombo-endarteritis of stem of pulmonary artery
19	1924	Moench ¹⁰⁹	29	F	Saccular on trunk, 7.6 cm in diameter	2½ inch (6.4 cm) rent in pulmonary aneurysm P.D.A.
20	1933	Steinberg ¹¹⁰	36	F	Saccular, on trunk	Aneurysm on anterior wall, 3 × 2.5 cm, P.D.A. 4 mm in diameter, healed endarteritis, thrombus 3.5 × 0.5 cm with streptococcal fibrinous pericarditis, chronic nephritis
21	1934	Joules ¹¹¹	37	F	Fusiform, on trunk and both branches	Hypoplasia of aorta, interauricular and interventricular septal defects, P.D.A.
22	1934	D'Aunoy and von Haam ¹¹²	32	M	Saccular, on left branch	P.D.A., egg shaped aneurysm (7 × 5.5 cm), syphilis of the aorta
23	1934	D'Aunoy and von Haam ¹¹³	13	F	Saccular, on left branch	Subacute bacterial endocarditis P.D.A., aneurysm 4 cm in diameter
24	1934	Favorite ¹¹⁴	18	M	Ruptured	Aortic hypoplasia rudimentary right ventricle and interventricular septal defect, P.D.A. with multiple rupture
25	1943	Johannsen and Connor ¹¹⁵	44	F	On right and left branches	Interventricular septal defect, cor pulmonale arteriosclerosis and calcification of pulmonary arteries
26	1943	Hartwell and Tilden ¹¹⁶	12	F	On anterior wall just before bifurcation, size of lemon	Rupture of aneurysm (1 cm linear tear) P.D.A., vegetative endocarditis several millimeters above free margin of mitral valve
27	1943	Yuskis ¹¹⁷	21	F	On right branch, rupture into bronchi	P.D.A., 3 × 4 cm saccular aneurysm on pulmonary artery
28	1944	Holmes ¹¹⁸	26	M	Multiple, on main branches of trunk	Infective endocarditis
29	1947	Deterling, Jr., and Clagett ⁸	37	M	Saccular on right branch, 3 × 7 cm	P.D.A. bilateral pulmonary arteriosclerosis, atheroma of right branch of pulmonary artery
30	1948	Lindert and Correll	67	F	On left branch	Rupture of aneurysm with 2 rents (15 × 6 cm) dissecting aneurysm of aorta P.D.A.

* On pulmonary artery † P.D.A. = patent ductus arteriosus

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absent in our case. Cardiac examination usually reveals hypertrophy of the right ventricle. We observed hypertrophy of both the right and the left ventricle. Deterling and Clagett point out that the most significant feature is the roentgenographic finding of a discrete pulsatile hilar mass separate from the aortic shadow. We found evidence of the pulmonary aneurysm on fluoroscopic and roentgenographic study. The causes of death in patients with pulmonary aneurysm are usually heart failure, bacterial endocarditis or bacterial endarteritis or rupture of the aneurysm. The latter has been infrequently reported. In Deterling and Clagett's series of 36 cases, 4 deaths were caused by rupture of the aneurysm. Of the 30 cases of pulmonary aneurysm seen concomitantly with patent ductus arteriosus summarized in the accompanying table, only 4 involved rupture of the aneurysm. It is further worthy of note that 10 patients (33.3 per cent) had bacterial endocarditis or endarteritis.

The final feature in this case, the finding of a dissecting aneurysm of the aorta, adds another rare vascular complication apparently unrelated to the congenital defect. To our knowledge this condition has heretofore not been reported in connection with patent ductus arteriosus and pulmonary aneurysm.

SUMMARY

An extremely unusual combination of vascular lesions is presented. A 67 year old white woman with patent ductus arteriosus had a pulmonary aneurysm and a history of long-standing hypertension, with a dissecting aneurysm of the aorta. Death was caused by a spontaneous rupture of the pulmonary aneurysm.

The literature was reviewed, and a total of 29 cases of pulmonary aneurysm in conjunction with patent ductus arteriosus was found. An additional case is presented, giving detailed autopsy observations. The possible existence of a pulmonary aneurysm in any patient beyond the age of 20 with patent ductus arteriosus should be emphasized.

Infectious Mononucleosis—This disease must be considered in the differential diagnosis of an exceedingly wide range of illnesses varying through leukemia and other blood dyscrasias, acute tonsillitis, diphtheria, Vincent's angina, rubella, hepatitis, meningoencephalitis and acute appendicitis to mention some of the more prominent. These varying simulated syndromes and the differential features have been exhaustively reviewed and described. Some manifestations such as hepatic dysfunction, occur frequently enough to be an almost constant part of the clinical picture. In several recent studies 68 of 72 consecutively studied patients with infectious mononucleosis revealed marked evidence of impairment of hepatic function by at least one of the tests used (cephalin flocculation, thymol turbidity, bromsulphthalein retention, alkaline phosphatase). Liver damage in infectious mononucleosis has been constant enough to lead to the warning that all patients with this diagnosis should be subjected to the same dietary regimen as is employed in acute hepatitis. Jaundice itself is, of course, much rarer, appearing in one of every 34 cases in one of these series. Among these manifestations some, such as thrombocytopenic purpura, are rare enough to raise questions in a differential diagnosis from idiopathic thrombocytopenic purpura. A bleeding tendency has been recognized more often and earlier in the history of this disease than actual thrombocytopenia itself—Wallerstein and Madison, Infectious Mononucleosis with Hepatic Dysfunction, Thrombocytopenic Purpura and Isolated Peripheral Nerve Palsy, *American Practitioner and Digest of Treatment*, June 1950.

Clinical Notes, Suggestions and New Instruments

ACUTE THROMBOPENIC PURPURA ASSOCIATED WITH ADMINISTRATION OF PROPYLTHIOURACIL

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Since the introduction of thiourea derivatives in the treatment of thyrotoxicosis, their potential toxic properties in therapeutic doses have become well recognized. Prior to 1946 thiouracil was the most widely used of these drugs, and, while at that time considered to be the least toxic, its depressive effect on granulocyte formation in certain persons was well known. In a review of the literature to January 1947 Morton¹ found an incidence of 1.88 per cent, listing 61 cases of reported thiouracil-induced agranulocytosis. If the many cases of leukopenia and granulocytopenia are included,² the incidence of toxic changes in the blood reaches 2.5 per cent.^{2b}

In 1946 Astwood and Vanderlaan³ first reported the use of propylthiouracil in the treatment of hyperthyroidism, finding no serious toxic effects in 100 patients, in 2 of whom neutropenia had developed with administration of thiouracil. Others have likewise reported impressive series without serious hemopoietic or granulocytopenic reactions.⁴ In spite of several reports of leukopenia and granulocytopenia and at least 6 cases of agranulocytosis,⁵ propylthiouracil has proved less toxic than thiouracil, and several authors⁶ have suggested that routine examination of the blood is not necessary unless sore throat or fever is noted.

With all the recognized effects of these drugs on the formation of the cellular elements of the blood, there have apparently been no reported cases of thrombopenic purpura during therapy with thiourea derivatives. Moore^{2a} reported 1 patient to whom thiouracil was administered who showed platelet depression to 32,000, with a positive reaction to the Rumpel-Leede test, a clotting time by the Lee and White method of 20.5 minutes, and, oddly, a normal bleeding time. This complication appeared twelve days after institution of therapy, disappeared after withdrawal of thiouracil for forty-eight hours and did not reappear in spite of subsequent readministration. With the exception of 1 case,^{5a} there has apparently been no published description of the megakaryocytes of the bone marrow nor of platelet counts, even in the reported instances of agranulocytosis. In their case of agranulocytosis, Livingston and Livingston^{5a} found that the megakaryocytes were normal in number but showed all stages of degeneration. The case described here is believed to be the first reported case of thrombopenic purpura occurring during the administration of propylthiouracil.

From the Medical Service, United States Veterans Hospital, Columbia (Dr. Zimmerman, Chief).

Published with the permission of the Chief Medical Director, Department of Medicine and Surgery, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn by the authors.

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2. (a) Moore F. D. Toxicity of Thiouracil. *J. A. M. A.* 130: 315 (Feb. 9) 1946. (b) Van Winkle W. and others. The Clinical Toxicity of Thiouracil. *J. A. M. A.* 130: 343 (Feb. 9) 1946. (c) Williams R. H., Clute H. M., Anglin T. J. and Kenney F. R. Thiouracil Treatment of Thyrotoxicosis. *J. Clin. Endocrinol.* 6: 23 (Jan.) 1946. (d) Grauer R. L., DeWalt H. and Elkin C. W. Thiouracil and Propylthiouracil in Pre-Surgical and Medical Management of Thyrotoxicosis. *Am. J. M. Sc.* 215: 63 (Jan.) 1948.

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5. (a) Livingston H. J. and Livingston S. F. Agranulocytosis and Hepatocellular Jaundice. *J. A. M. A.* 135: 422 (Oct. 18) 1947. (b) Eisenmenger W. J. and Steele I. M. Leukopenia Following Use of Thiouracil. *J. A. M. A.* 135: 510 (Oct. 25) 1947. (c) Bartels E. C. Agranulocytosis During Propylthiouracil Therapy. *Am. J. Med.* 5: 48 (July) 1948. (d) Juliar B. and Harris T. L. Fatal Agranulocytosis Occurring During Propylthiouracil Therapy. *J. A. M. A.* 139: 646 (March 5) 1949.

6. McCullagh, Hibbs and Schneider.⁴ Reveno.^{2b}

REPORT OF CASE

F R A, a 50 year old white man, was admitted to the hospital Aug 12, 1949 with chills, fever and abdominal pain of two weeks' duration. His illness had begun with a shaking chill and a temperature of 103 F. He had subsequently experienced chills, malaise, abdominal pain and anorexia but denied vomiting.

Past history revealed that the patient had been gassed during World War I and had had influenza in 1918 and malaria in 1935. Since 1919 he had had infrequent attacks of pain in the left shoulder, associated with palpitation, rapid breathing and a sensation of choking and weakness. He was admitted to another hospital on June 27, 1949 with these complaints, where he was found to have a constant tachycardia and a basal metabolic rate of plus 24. A diagnosis of hyperthyroidism was made, for which he was given 400 mg of propylthiouracil daily for ten days followed by 300 mg daily for eight days. The basal metabolic rate fell to zero, and he was discharged on July 30 with instructions to take 50 mg of propylthiouracil three times a week. Past medical history and family history were noncontributory for allergy or bleeding tendencies.

The patient was a well developed, well nourished man in moderate distress, with a rectal temperature of 101.8 F. Examination of the abdomen revealed normal peristalsis and an indefinite mass in the right lower quadrant extending slightly above the right ileac crest. The liver, spleen and kidneys were not palpable. The rest of the examination was essentially normal.

An abdominal roentgenogram showed no soft tissue mass. A roentgenogram of the chest showed the heart and lungs to be within normal limits. Urinalysis revealed 2 to 5 white blood cells, a few red blood cells, an occasional hyaline cast and a large amount of mucus. The results of a later urinalysis were similar except that there was a trace of albumin. The initial red blood cell count was 3,740,000, with a hemoglobin level of 12 Gm, the white cell count was 14,050, with 3 per cent juvenile forms, 18 per cent band cells, 48 per cent segmented neutrophils, 18 per cent lymphocytes, 9 per cent monocytes and 4 per cent eosinophils. Bleeding time was 3 minutes 15 seconds and coagulation time (Lee and White) 4 minutes 30 seconds. Two days after admission the white cell count had dropped to 8,200, with 70 per cent neutrophils, 29 per cent lymphocytes and 1 per cent eosinophils. Tests of the stools showed no occult blood.

Initially the patient was thought to have an appendical abscess, and penicillin, 100,000 units every three hours, was administered. A spiking temperature persisted for three days and then dropped to 100 F. Eight days after admission a petechial eruption involving the conjunctiva, buccal mucosa, tongue, lower part of the thorax, abdomen and lower extremities developed. Concurrently the liver edge was felt 2 fingerbreadths below the right costal margin. The spleen was not palpable. There were a few submental glands palpable. The mass in the right lower quadrant had decreased in size and was no longer tender. On August 22 the white and differential blood cell counts were normal, the bleeding time was 30 minutes plus and the coagulation time was 8 minutes. There was mild anemia, with a hemoglobin level of 12.5 Gm. The prothrombin time (Quick) was 15.5 seconds, with a control of 15 seconds. No platelets were seen in the peripheral blood smears. Studies of the liver function were normal.

Transfusions of whole blood (bank) were immediately started, and large doses of ascorbic acid and a vitamin K preparation were administered. On August 24 the urine became grossly bloody, and the stools were watery and contained large amounts of red blood. As soon as whole fresh blood was available, repeated transfusions were made, a total of 3,000 cc of bank blood and 3,500 cc of fresh blood being given. A spiking temperature continued for four days, gradually returned to normal and remained so throughout the remainder of the hospitalization, the clinical course from August 25 being uneventful. Although the melena and hematuria continued, no new petechiae appeared, and the patient's general condition gradually improved. In retrospect, the mass palpated in the right lower quadrant was considered to have been a retroperitoneal hematoma. Daily

blood cell and platelet counts from August 22 to August 29 showed a steady rise in the red cell and hemoglobin counts but no platelets were seen. Blood could no longer be detected in the stools on August 29, and the urine was clear by September 5. Platelets first appeared August 29, by September 5 numbered 65,000 and on September 22 numbered 117,000. Just prior to discharge the red cell count was 4,700,000 with 12.5 Gm of hemoglobin, examinations of the stools revealed no blood.

Four blood cultures, aerobic and anaerobic were negative after twenty-one days' incubation. A bone marrow examination delayed because of the increased bleeding time, on September 27 showed megakaryocytes to be normal in number and appearance and the proportions of the other cells were within normal limits. An electrocardiogram on September 9 was within normal limits. At the time of discharge the patient had a cholesterol determination of 220 mg per hundred cubic centimeters and a basal metabolic rate of plus 6, with no clinical evidence of hyperthyroidism.

Follow-up on this patient on November 28 revealed a red blood cell count of 4,600,000, with 14 Gm of hemoglobin. The platelet count was 185,000, the bleeding time 2 minutes 30 seconds and the coagulation time 3 minutes 30 seconds. No petechiae or purpuric spots were noticed. The spleen was not palpable. He appeared to be in excellent health.

COMMENT

This, then, is a striking example of bleeding caused by acute platelet depression occurring during the administration of propylthiouracil. To our knowledge it is the only case thus far reported in which severe and selective platelet depression with concomitant profuse and universal bleeding occurred during the administration of this drug. Since penicillin was also administered in rather large doses, the question naturally arises as to its possible etiologic role in this blood dyscrasia. Such manifestations of sensitivity to penicillin surely must be rare in view of the widespread use of the drug and the amazing paucity of clinical reports dealing with marrow depression resulting from it. We were able to find only one report in the literature in which bleeding associated with platelet depression was noted during the repeated administration of penicillin. In that case, reported by Krusius,⁷ the severe bleeding was attributed to sensitization to penicillin as a result of retreatment with resultant capillary damage and secondary thrombopenia. Whether or not we agree with this concept is not particularly relevant to this report. The sensitivity could just as well have resulted in platelet depression in the case reported by Krusius. Morginson,⁸ in his article on the toxic properties of penicillin listed hemorrhagic manifestations but did not support his statement with case reports showing that platelet depression was responsible for the bleeding tendencies.

To our knowledge our patient had not received penicillin prior to this present admission. This fact alone, however, need not preclude the possibility that penicillin was responsible for the thrombopenia. More important, we believe, was the appearance of the mass in the right lower quadrant and the chills and fever prior to the administration of the drug. If our contention was correct, in that the mass observed was a retroperitoneal hematoma, then it would appear obvious that the bleeding antedated the administration of penicillin. We believe that such was the case.

It is our feeling, then, that this is the first reported case of thrombopenia occurring during the administration of propylthiouracil. This report is submitted as a warning of the possibility of such an occurrence during use of the drug.

SUMMARY

A case of acute platelet depression with classic signs and symptoms of thrombopenic purpura occurring during the administration of propylthiouracil is reported. The implications of the concomitant use of penicillin are discussed.

7 Krusius, F. E. Thrombocytopenic Purpura Accompanying Penicillin Therapy, *Ann med int Fenniae* 36:3 and 531, 1947.
8 Morginson, W. J. Toxic Reactions Accompanying Penicillin Therapy, *J A M A* 132:915 (Dec 14) 1946.

A SELF RETAINING VAGINAL SPECULUM

T C GILBERT, M D
Dallas Texas

The new self retaining vaginal speculum is basically similar to the familiar Graves speculum, with modifications which are designed to make the instrument comfortable and, at the same time, to take advantage of anatomic structures in accomplishing the purpose of self-retention

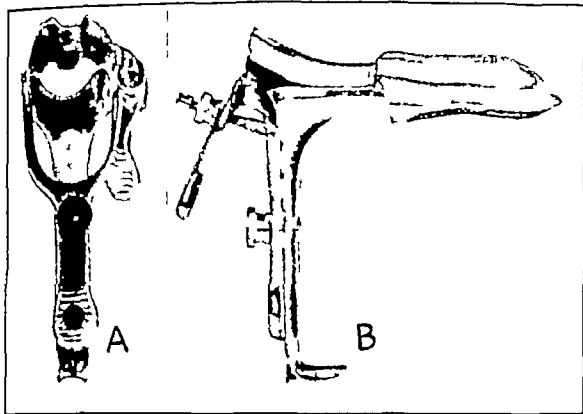


Fig 1—A the channel housing as it appears when one is looking into the head of the speculum B lateral view of the speculum The transverse flanges appear as elevations on the blades They are made by making double right angle turns in the blades

Modification 1—Modification 1 consists of a longitudinal channel in the upper blade which is 2 inches (5 cm) long 3/16 inch (0.48 cm) in depth and 4/16 inch (0.64 cm) wide to receive the urethra (fig 1 A) This has the effect of permitting the upper blade to rest snugly against the vaginal roof, and at the same time the urethra is relieved of excessive pressure or trauma When the urethra is housed in the channel it steadies the instrument If it is desired to rotate the speculum, it is advisable to withdraw it until the urethra is disengaged and then to rotate it away from the urethra and reintroduce it

Modification 2—Modification 2 is made by placing a transverse shoulder, or flange, on the upper blade (fig 1 B) This shoulder is traversed by the urethral channel The remaining shoulders are designed to impinge against the vaginal roof and the pubic arch and in this manner to act as impediments to disengagement of the instrument

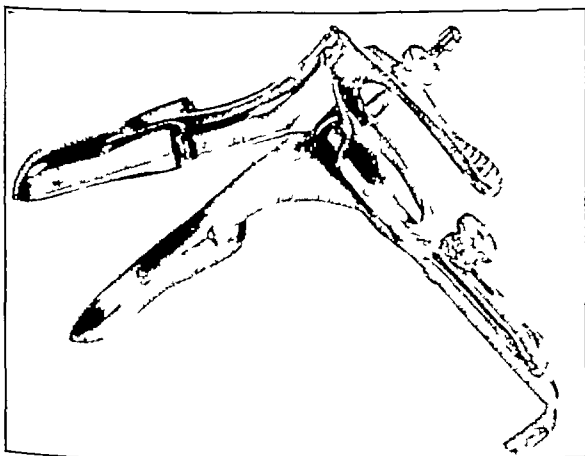


Fig 2—General view, showing the speculum in an open position The lateral shoulders are made by widening the blades at the level of the transverse flanges

Modification 3—Modification 3 consists of a transverse shoulder, or flange, placed on the lower surface of the posterior blade 2 inches (5 cm) distal to the mouth of the speculum (fig 1 B) It extends entirely across the blade, which at this point is widened to form lateral shoulders on the edges of both

blades (fig 2) This transverse shoulder, or flange, is designed to impinge against the perineum from within and in this manner to act as a deterrent to expulsive force.

Modification 4—Modification 4 consists of four lateral shoulders which are made by widening the blades at the level of the other transverse shoulders, of which they are a part (fig 2)

The self-retaining feature of the speculum is chiefly based on muscle tone and its action against these shoulders The closing mechanism of the vagina is maintained by reflex muscular tone, the intensity of which depends on the exciting stimulus The seat of this action is located in the urogenital diaphragm and involves such muscles as the sphincter vaginae, constrictor vaginae, pubococcygeus and perhaps others These structures are a part of the larger pelvic diaphragm and the pelvic floor This sphinctral action causes the closure mechanism to contract about the neck of the speculum with greater or less intensity as the instrument is introduced into the vaginal orifice, which is somewhat smaller The circumference of the speculum at the level of the shoulders is considerably greater than the circumference of the neck of the speculum This larger circumference and the several shoulders come to rest against the pelvic floor as the muscles contract about the smaller circumference, or the neck of the speculum

The instrument is comfortable and well tolerated by patients who are married and in the child-bearing period It will be found useful, convenient and time saving, and it requires little attention By reason of its self-retaining feature, the hands of the assistant and the doctor are free to perform other, more important, work

The speculum is of neat design, manufactured of stainless steel, light weight (6½ ounces) and well balanced, with a satin finish inside

SENSITIVITY TO VITAMIN B₁₂ CONCENTRATEWOODSON C YOUNG M D
CLIFFORD W ULRICH M D
and
PAUL J FOUTS M D
Indianapolis

It has been suggested that vitamin B₁₂ is satisfactory therapy for patients who are sensitive to liver¹ This report concerns a patient extremely sensitive to liver extract who also reacted to vitamin B₁₂ concentrate but showed no evidence of sensitivity to crystalline vitamin B₁₂

REPORT OF CASE

The patient was known to have had pernicious anemia for five years and was first treated with injections of purified liver extract He improved and voluntarily discontinued therapy after one year's treatment One and one-half years later treatment was resumed with purified beef liver extract The patient improved but later experienced reactions to injectable liver extract and was started on oral therapy with liver-stomach concentrate and iron Therapy was adequate for some time but in August 1949 the man had neurologic and hematologic relapse It was learned that he had been taking folic acid 75 mg daily in addition to liver-stomach concentrate with iron for about one year When injectable liver therapy was resumed he experienced severe and alarming reactions after each dose, but in spite of these reactions he improved clinically He received several large doses of thiamine hydrochloride during this relapse

The patient was found to be extremely sensitive to purified liver extract with added thiamine hydrochloride (3 mg per cubic centimeter) for parenteral use (reticulogen²) and was admitted to the ward of the Lilly Laboratory for Clinical Research Although desensitization was accomplished with difficulty, it was possible after four days to administer 1 cc. of the drug without reaction The patient was discharged from

From the Lilly Laboratory for Clinical Research Indianapolis General Hospital

¹ Berk L, Denny Brown D, Finland M and Castle W B Effectiveness of Vitamin B₁₂ in Combined System Disease New England J Med. 239 328-330 (Aug 26) 1948

the hospital to receive 0.5 cc. of the drug intramuscularly twice weekly. Within two months he again had severe reactions to the injections.

Treatment was changed to vitamin B₁₂ concentrate made from streptomycin broth, the equivalent of 5 micrograms every five days. After the sixth dose the patient complained of a slight burning of his throat and itching and swelling at the site of injection. He received five or six more injections and experienced similar discomfort each time. The medication was changed to a vitamin B₁₂ concentrate made from liver (experimental no. 1310), and 5 micrograms was administered every five days for six months without untoward reaction. During this time the blood became normal, and there was decided improvement in neurologic symptoms. The patient returned to work. Since the supply of vitamin B₁₂ concentrate made from liver was exhausted, a vitamin B₁₂ concentrate prepared from streptomycin broth (experimental no. 1336) was administered. About five to ten minutes after the patient received the eleventh injection of 5 micrograms of the vitamin B₁₂ concentrate prepared from streptomycin broth peripheral circulatory collapse developed. The patient was perspiring profusely. The blood pressure was approximately 40 systolic and zero diastolic, the pulse was rapid and weak. He was given an infusion of isotonic sodium chloride solution, injections of epinephrine and antihistaminic drugs by the oral route. He recovered after approximately three hours. Therapy was then changed to crystalline vitamin B₁₂ made from streptomycin broth, and the patient has shown no evidence of sensitivity.

Intradermal skin tests were performed with 1:100,000 dilutions of purified liver extract, 15 injectable units per cubic centimeter with purified liver extract with added thiamine hydrochloride for parenteral use and with a 1:1,000 dilution of vitamin B₁₂ concentrate from liver (experimental no. 1310). Wheals with pseudopodia and erythema developed at the sites of injection. The reaction to a 1:1,000 solution of vitamin B₁₂ concentrate from streptomycin broth (experimental no. 1336) consisted of an area of erythema approximately 1.5 cm in diameter. Tests were also made with a 1:1,000 dilution of thiamine hydrochloride, with crystalline vitamin B₁₂ and with streptomycin. The site of injection of the thiamine hydrochloride showed an area of slight erythema, approximately 1 cm in diameter. There was no reaction at the site of injection of crystalline vitamin B₁₂ and streptomycin.

SUMMARY*

A patient with pernicious anemia who is highly sensitive to purified liver extracts made from beef liver and pork liver has experienced reactions to vitamin B₁₂ concentrate made from streptomycin broth and showed evidence of acquired sensitivity to vitamin B₁₂ concentrate made from liver, as manifested by the intradermal skin test. As yet there is no evidence of sensitivity to crystalline vitamin B₁₂.

DISPOSABLE ILEOSTOMY AND COLOSTOMY BAG

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and

ROBERT TURELL, M.D.
New York

A newly designed ileostomy bag has the following features: (1) it is made of nonporous material that, unlike rubber, does not absorb odors, (2) it fits air-tight and water-tight to the skin about the ileostomy stoma without causing cutaneous irritation, escape of fluids or odor and prolapse of the stoma, (3) the bag or the drainage receptor is small and disposable, (4) the parts can be assembled and disassembled with ease, and (5) it is economical (figs. 1 and 2).

The body engaging plate is of plastic material and the opening is made to fit the individual stoma; it is held in place by means of double-faced adhesive cellulose tape. After the engaging plate is affixed to the skin about the stoma, additional support is afforded by means of a special belt (fig. 2).

The bag is made of disposable plastic material, it may be discarded with the fecal material or washed and reused. The mouth of the bag is placed over the flange or the boss of the engaging plate and is held firmly in place by a spring that fits into the recess of the grooves of the boss. Thus the bag is securely fixed to the engaging plate, preventing leakage of gas or liquid intestinal material (fig. 1D).

For some time after the construction of an ileostomy, stoma it is best to place a thick layer of bland ointment about the wound and to set a large enough engaging plate temporarily into this ointment without attention to proper fitting. This plate is held in place by many-tailed scultetus bandage surrounding the ring of the plate and the patient's body, with the bag dangling outside the bandage. After the subsidence of edema of the stoma and the healing of the wound, the size of the stoma is carefully measured and a permanent well fitting engaging plate is constructed.

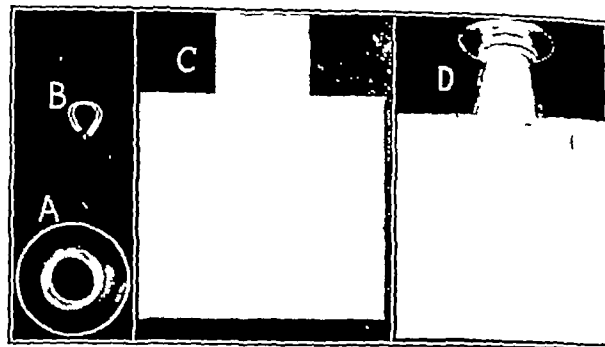


Fig. 1—An improved ileostomy receptor. A: body engaging plate and boss with passageway therethrough. B: coiled spring which holds bag in place without leakage. C: disposable plastic receptor which may be of any desirable size or shape and D: parts assembled.



Fig. 2—Parts as shown in figure 1 with the engaging plate adhered to skin and further supported with belt before receptor is fixed to it.

COMMENT

In a properly constructed ileostomy, one in which the ileal loop usually projects about 2 to 4 cm above the level of the skin, the mucosal cap fits well into the passageway of the engaging plate and boss, and the intestinal excretions pour directly into the bag. Since the skin about the stoma is covered, cutaneous irritation is avoided.

The patient may wear the plate for one to two days, or even longer in some cases. It need not be disturbed during changing of the bag; in fact, the facility of changing of the bag is such that this is accomplished without soiling of the hands or clothes. Usually, the bag is changed about every eight hours, the amount of ileal discharge and the patient's convenience determine the frequency of change of the bag. Gas is usually disposed of by disengaging the bag from the plate and reapplying it. The bag may be worn by patients who have abdominal colostomy stomas, primarily for the management of the uncontrolled, annoying escape of gas; most patients with transverse colostomy need a bag for the control of gas as well as feces.

SUMMARY

A newly constructed, disposable, nonbulky, easily applied ileostomy (or colostomy) bag is described.

*From the Division of Proctology, Department of Surgery, University of Vermont School of Medicine.

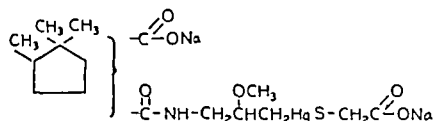
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. 1 copy of the rules on which the Council bases its action will be sent on application.

R T STORMONT M D Secretary

MERCAPTOMERIN SODIUM—Thiomerin Sodium (CAMPBELL PHARMACEUTICAL Co)—Disodium salt of N-(γ-carboxymethylmercaptomercuri-β-methoxy)propyl camphoramic acid— $C_{16}H_{25}HgNNa_2O_6S$ —MW 606.03—The structural formula of mercaptomerin sodium may be represented as follows:



Actions and Uses—Mercaptomerin sodium is an effective mercurial diuretic which produces much less local irritation on injection than other organo-mercurial compounds used for this purpose. It is also less toxic to the heart than the previously employed mercurial diuretics. It shares the other actions of these compounds and likewise manifests the potential toxic effects of mercury. Preliminary acidification of the urine also sometimes enhances its diuretic effect. See the general statement on Mercury Compounds.

Mercaptomerin sodium is contraindicated in advanced chronic nephritis and acute renal disease and care must be taken in its use with drastic sodium chloride restriction to avoid salt depletion from copious diuresis.

Dosage—Mercaptomerin sodium is administered by subcutaneous injection in the form of a solution readily prepared from the dry form of the drug in a concentration of 0.14 Gm per cubic centimeter of sterile distilled water (14 per cent). Each cubic centimeter of such solution contains the equivalent of 0.04 Gm of mercury.

Mercaptomerin sodium is sufficiently free of local irritant effects to make subcutaneous injections safe and by this route it produces diuretic effects similar to those of equivalent doses of other mercurial diuretics administered intravenously. Care must be taken to place the injection beneath the subcutaneous fat to make repeated injections at different sites and to avoid edematous areas. Extreme emaciation may make intramuscular injection preferable.

The dosage of the 14 per cent solution ranges from 0.5 to 2 cc, subcutaneously depending on the requirements of the individual patient. The drug is sensitive to heat and should be kept under refrigeration. The solution should be discarded on appearance of turbidity.

Tests and Standards—

Physical Properties—Mercaptomerin sodium is a hygroscopic white solid. It does not melt but decomposes between 150 and 155 C. It is freely soluble in water, soluble in alcohol, very slightly soluble in ether and practically insoluble in benzene and chloroform.

Identity Tests—Add about 0.1 Gm of mercaptomerin sodium dissolved in 1 ml of water to a solution prepared by mixing 2 ml of 0.2 N sodium acetate with 1 ml of 5 per cent cobalt nitrate; the color does not change. Then add 1 ml of 50 per cent potassium iodide; the solution becomes a deep orange.

Dissolve about 0.7 Gm of mercaptomerin sodium in 5 ml of water and add 2 ml of saturated sodium sulfide (about 20 per cent). Place the mixture under a well ventilated hood and make strongly acid with hydrochloric acid. Heat to boiling; filter, concentrate the filtrate to about 2 ml and cool; white crystals separate melting between 171 and 173 C after recrystallization from a little water (presence of allylcamphoramic acid).

Purity Tests—Weigh an unopened vial of mercaptomerin sodium. Remove the stopper and insert stopper and vial into an Abderhalden drying pistol and dry over phosphorus pentoxide at 100 C for 3 hours. Quickly reinsert the stopper and reweigh the vial. Dissolve the mercaptomerin sodium and reweigh the clean dry vial. The loss in weight is not more than 2.0 per cent.

Char about 0.1 Gm of mercaptomerin sodium accurately weighed in a platinum dish. Moisten the residue with a drop of sulfuric acid and ignite it at red heat. Each Gm of sodium sulfate obtained is equivalent to 0.3238 Gm of sodium. The sodium content is not less than 3.60 nor more than 3.98 per cent.

Assay (Mercury)—Accurately weigh 5 unopened vials of mercaptomerin sodium. Transfer the contents quantitatively to a 250 ml volumetric flask. Dry and reweigh the empty vials. Fill the volumetric flask to the mark with water. Transfer exactly 5 ml of this solution to a 150 ml beaker and add 20 ml of saturated sodium sulfide solution and adjust the volume to approximately 75 ml. Electrolyze for 24 hours at a current density of 0.5 amperes using a rotating platinum cathode. (The mercury forms a shiny tenacious coating on the cathode.) At the end of the electrolysis, rinse the cathode successively with water and alcohol, dry at room temperature and weigh. The amount of mercury present is not less than 31.4 nor more than 34.8 per cent.

(Mercaptoacetic Acid)—Pipet 5 ml of mercaptomerin sodium solution from the volumetric flask to a 250 ml Erlenmeyer flask, add 100 ml of water, 3 Gm of potassium iodide and 2 ml of glacial acetic acid and titrate with 0.1 N potassium iodate until the solution gives a positive test to starch paste. Each ml of 0.1 N potassium iodate is equivalent to 0.009200 Gm of mercaptoacetic acid. The amount of mercaptoacetic acid found is not less than 14.4 nor more than 15.6 per cent.

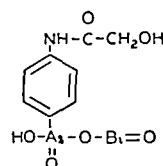
The mole ratio of mercaptoacetic acid to mercury is not less than one.

CAMPBELL PHARMACEUTICAL Co NEW YORK 16

Powder Thiomerin Sodium 10 cc and 30 cc vials containing 14 Gm and 42 Gm of mercaptomerin sodium respectively for injection. The 10 cc vial is packaged with a 10 cc ampul of sterile water. On dilution each cc contains the equivalent of 40 mg of mercury.

U S trademark 436 086

BISMUTH GLYCOLYLARSANILATE—Milbis (WINTHROP STEARNS)—Bismuth glycolylarsanilate is the product of the reaction between sodium p-N-glycolylarsanilate and bismuth nitrate— $C_5H_5AsBiNO_6$ —MW 499.07—The structural formula of bismuth glycolylarsanilate may be represented as follows:



Actions and Uses—Bismuth glycolylarsanilate is an amebicide recommended only for the treatment of intestinal amebiasis. Low solubility and poor absorption are responsible for its low toxicity. These properties limit its usefulness to the prevalent intestinal form of the disease. It should therefore be supplemented by other therapy in the presence of amebic hepatitis and/or deep seated, cicatrized ulceration of the intestine.

The compound produces a characteristic bismuth effect manifested by reduced peristalsis but in the presence of acute dysentery it must be administered in larger amounts to offset rapid elimination from the intestine. The presence of arsenic in the compound requires caution in its use in patients hypersensitive to arsenicals.

Dosage—The average adult oral dosage recommended is 0.5 Gm three times daily; this dosage administered for a period of seven days constitutes a single course of treatment. Further courses of treatment or change in therapy may be indicated when positive stool findings persist. Larger doses may be employed during frank diarrhea to obviate rapid elimination of the drug.

Tests and Standards—

Physical Properties—Bismuth glycolylarsanilate is an odorless yellowish white to flesh colored amorphous powder which decomposes when heated. It is very slightly soluble in alcohol and water and is soluble in benzene, chloroform and ether. The pH of a saturated solution is between 2.8 and 3.5.

Identity Tests—Dissolve about 1 Gm of bismuth glycolylarsanilate in 30 ml of water and 2 ml of hydrochloric acid. Boil the solution gently for 2 minutes and then cool and divide it into 3 equal portions. To the first portion add 1 ml of sodium sulfide TS; a heavy black precipitate forms (presence of bismuth). Test the second portion for arsenic by the method of U S P XIII, page 618. A strong positive reaction is obtained. To the third portion add bromine water TS until a permanent light yellow is obtained; a curdy white precipitate forms. Filter the precipitate and extract it with 10 ml of ether. Filter and evaporate the ether extract to dryness. Recrystallize the residue from alcohol with the aid of decolorizing charcoal; the tan colored crystals of 2,4,6-tribromoaniline melt between 118 and 121 C (presence of arsenic acid).

Purity Tests—Stir about 1 Gm of bismuth glycolylarsanilate accurately weighed with 50 ml of water in a 400 ml beaker. Add 50 Gm of ice and dilute the solution to a volume of about 200 ml. Add 5 ml of diluted hydrochloric acid and immediately titrate with 0.02 N sodium nitrite. The titration must be completed within 5 minutes after addition of the acid. Run a blank determination on the reagents. Each ml of 0.02 N sodium nitrite consumed by the bismuth glycolylarsanilate is equivalent to 0.004341 Gm of arsenic acid. The amount of free arsenic calculated as arsenic acid is not more than 0.5 per cent.

Dry about 1 Gm of bismuth glycolylarsanilate accurately weighed at 105 C for 24 hours; the loss in weight is not more than 3 per cent.

Assay (Arsenic) Transfer about 0.3 Gm of bismuth glycolylarsanilate accurately weighed to a 100 ml Kjeldahl flask. Add 5 ml of acid (9 parts of sulfuric acid to 1 part of nitric acid) and digest until the material has a light tan color (about 15 minutes). Cool, dilute the solution with 5 ml of water and evaporate until fumes of sulfur trioxide appear. Add 50 mg of starch and digest the mixture until it becomes light orange (about 2 hours). Cool, dilute the solution with 50 ml of water and transfer it to a 600 ml beaker containing 25 ml of 10 per cent potassium sodium tartrate. Cool the solution with ice, put a small piece of congo red paper in it and add 40 per cent sodium hydroxide until the mixture is slightly alkaline. Next add a few drops of diluted sulfuric acid until the solution is slightly acid then add 3 Gm more of solid sodium bicarbonate than is required for neutralization. Titrate the resulting solution with 0.1 N iodine. Each ml of 0.1 N iodine is equivalent to 0.003745 Gm of arsenic. The amount of arsenic present is not less than 14 nor more than 16 per cent.

(Bismuth) Transfer about 0.5 Gm of bismuth glycolylarsanilate, accurately weighed to a 400 ml beaker. Add 10 ml of nitric acid and heat it on a steam bath until the material has a light tan color. Dilute the solution to 100 ml, boil it gently and add 50 ml of 4 per cent diammonium phosphate during 2 to 3 minutes. Allow the mixture to stand for 1 hour and filter it through a tared Gooch crucible. Dry the precipitate to constant weight at 105°C. Each Gm of precipitate is equivalent to 0.6875 Gm of bismuth. The amount of bismuth present is not less than 36 nor more than 42 per cent.

(Arsanilic Acid) Dissolve about 0.5 Gm of bismuth glycolylarsanilate accurately weighed, in 30 ml of diluted hydrochloric acid and gently reflux the solution for no longer than 5 minutes. Cool the solution, chill it with ice and titrate it with 0.1 N sodium nitrite. Each ml of 0.1 N sodium nitrite is equivalent to 0.02170 Gm of arsanilic acid. The amount of arsanilic acid present is not less than 42.2 nor more than 44.8 per cent.

BISMUTH GLYCOLYLARSANILATE TABLETS

Identity Tests. The tablets respond to the identity tests given in the monograph for Bismuth Glycolylarsanilate.

Assay (Bismuth) Weigh 20 tablets and grind them to a fine powder. Accurately weigh a sample of the powder equivalent to 0.5 Gm of bismuth glycolylarsanilate and analyze it for bismuth by the method given in the monograph for Bismuth Glycolylarsanilate. Each Gm of precipitate is equivalent to 1.642 Gm of bismuth glycolylarsanilate. The amount of bismuth glycolylarsanilate present is not less than 86.0 nor more than 100.5 per cent of the labeled amount.

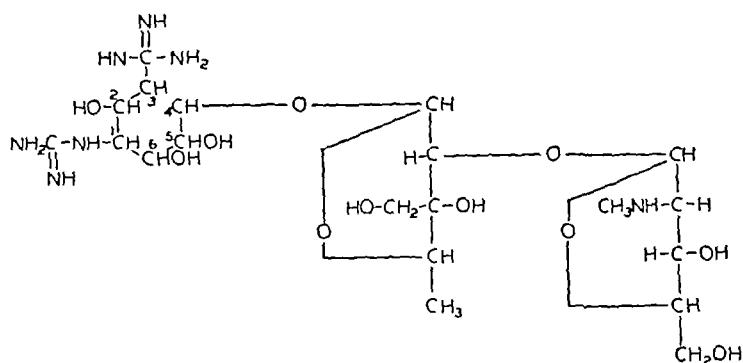
(Arsanilic Acid) Accurately weigh a quantity of crushed tablets equivalent to 0.5 Gm of bismuth glycolylarsanilate and assay the powder for arsanilic acid by the method given in the monograph for Bismuth Glycolylarsanilate. Each ml of 0.1 N sodium nitrite is equivalent to 0.04991 Gm of bismuth glycolylarsanilate. The amount of bismuth glycolylarsanilate present is not less than 95 nor more than 105 per cent of the labeled amount.

WINTHROP-STEARNES, INC., NEW YORK 13

Tablets Milibis 0.25 Gm

U S Patent 1,934,017

DIHYDROSTREPTOMYCIN-U S P — $C_{21}H_{41}N_7O_{12}$ — M W 583.59 — Dihydrostreptomycin is produced by the hydrogenation of streptomycin. It is usually available as the hydrochloride, $C_{21}H_{41}N_7O_{12} \cdot 3HCl$ or as the sulfate, $(C_{21}H_{41}N_7O_{12})_2 \cdot 2H_2SO_4$. It complies with the requirements of the Federal Food and Drug Administration — **U S P** — The structural formula of dihydrostreptomycin may be represented as follows:



Dosage of dihydrostreptomycin salts is expressed in terms of dihydrostreptomycin base. The salts are soluble in aqueous mediums, but are generally insoluble in organic solvents. The dried powder is stable at room temperature for 18 months, the solution shows no appreciable loss of potency for as long as one month. For injection salts of dihydrostreptomycin may be dissolved in pyrogen-free sterile distilled water, isotonic sodium chloride solution, or 5 per cent dextrose solution, by adding the equivalent of 250 to 500 mg of dihydrostreptomycin base per cubic centimeter of solvent. A solution of 1 per cent procaine hydrochloride or the equivalent of other suitable local anesthetic in distilled water may also be used as a solvent.

Actions and Uses — Dihydrostreptomycin shares the actions and uses of its parent compound, streptomycin. Like streptomycin, it is effective against a variety of gram-negative and gram-positive pathogenic bacteria, including the tubercle bacillus and to a lesser extent against infections due to *Pseudomonas*

aeruginosa or *Proteus vulgaris*. The common predisposition to the development of resistance of the infecting organism to streptomycin applies with equal emphasis to dihydrostreptomycin. It may be used in the following conditions: Subacute bacterial endocarditis (in staphylococcal or streptococcal infections only when penicillin resistant or streptomycin sensitive); acute gonorrhea (penicillin resistant); urinary tract infection due to susceptible gram-negative bacilli, and peritonitis due to gram-negative bacilli. It is also used for prophylaxis in surgery of the gastrointestinal tract and intrathecal injection in tuberculous meningitis. In brucellosis dihydrostreptomycin may be used in combination with sulfadiazine if aureomycin and chloramphenicol are not available.

Like streptomycin dihydrostreptomycin is capable of producing neurotoxic manifestations such as vestibular and auditory dysfunction.

Audiometric tests for vestibular function should be made prior to prolonged treatment with the drug and thereafter repeated at least every two weeks during therapy. Skin or allergic reactions occur as with streptomycin. If these reactions are mild, they may be controlled with histamine-inhibiting agents, if they persist, it may be necessary to discontinue the drug or change to streptomycin. When toxic reaction occurs clinical judgment must be exercised as to termination of therapy. During treatment with dihydrostreptomycin it is advisable to carry out periodic *in vitro* tests to determine sensitivity of the causative organism to the various antibiotics.

Dosage — Dihydrostreptomycin is administered as the hydrochloride or sulfate in doses similar to those of streptomycin. Unlike streptomycin, dihydrostreptomycin must be injected by the intramuscular route only. It must not be injected intravenously. The sulfate may be given by the intrathecal route in doses not to exceed 1 mg per pound of body weight up to 50 pounds of weight. It may be given daily or on alternate days. Intraspinal therapy is rarely indicated in any condition other than tuberculous meningitis.

Intramuscular injection of the drug may cause pain which may be reduced by observance of the following suggestions: (a) allow 12-hour intervals between injections, (b) use only fresh solutions, (c) restrict maximum volume of injection at any one site to 2 cc, (d) use the upper outer quadrant of the buttocks and change site for each injection, (e) insert needle deeply to avoid subcutaneous deposition and inject slowly, (f) as the diluent, use a local anesthetic with distilled water, (g) avoid concentrations whose dihydrostreptomycin base equivalent is greater than 500 mg per cubic centimeter of solvent. Each 500 mg equivalent of the powder contributes approximately 0.3 cc to the volume of solution made.

ABBOTT LABORATORIES, NORTH CHICAGO, ILL

Dihydrostreptomycin Sulfate Dihydrostreptomycin sulfate equivalent in activity to 1 Gm and 5 Gm of dihydrostreptomycin base in vials.

BIO-RAMO DRUG CO., INC., BALTIMORE 1

Dihydrostreptomycin Sulfate Dihydrostreptomycin sulfate equivalent in activity to 1 Gm and 5 Gm of dihydrostreptomycin base in vials.

ELI LILLY & COMPANY, INDIANAPOLIS 6

Dihydrostreptomycin Sulfate Dihydrostreptomycin sulfate equivalent in activity to 1 Gm and 5 Gm of dihydrostreptomycin base in 20 cc ampuls.

MERCK & COMPANY, RAHWAY, N J

Dihydrostreptomycin Sulfate Dihydrostreptomycin sulfate equivalent in activity to 1 Gm and 5 Gm of dihydrostreptomycin base in 20 cc and 50 cc vials, respectively.

THE W. S. MERRELL COMPANY, CINCINNATI 15

Dihydrostreptomycin Sulfate Dihydrostreptomycin sulfate equivalent in activity to 1 Gm and 5 Gm of dihydrostreptomycin base in 20 cc and 50 cc vials, respectively.

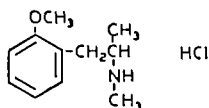
CHAS. PFIZER & CO., INC., BROOKLYN 6

Dihydrostreptomycin Sulfate Dihydrostreptomycin sulfate equivalent in activity to 1 Gm, 5 Gm and 10 Gm of dihydrostreptomycin base in 20 cc bottles.

PREMO PHARMACEUTICAL PRODUCTS, INC., SOUTH HACKENSACK, N J

Dihydrostreptomycin Sulfate Dihydrostreptomycin sulfate equivalent in activity to 1 Gm of dihydrostreptomycin base in vials.

METHOXYPHENAMINE HYDROCHLORIDE — Orthoxine Hydrochloride (UPJOHN) — β -(*o*-Methoxyphenyl)isopropylmethylamine hydrochloride — $C_{11}H_{15}NO \cdot HCl$ — MW 215.72 — The structural formula of methoxyphenamine hydrochloride may be represented as follows



Actions and Uses — Methoxyphenamine hydrochloride is a sympathomimetic compound whose predominate actions are bronchodilatation and inhibition of the smooth muscle. Its effect on blood vessels is minimal its pressor activity being considerably less than that of ephedrine or epinephrine.

Methoxyphenamine hydrochloride counteracts smooth muscle spasm due to pilocarpine, histamine, acetylcholine and barium chloride. It is useful as a bronchodilator in the treatment of asthma and is also effective in allergic rhinitis, acute urticaria and gastrointestinal allergy.

The usual doses of methoxyphenamine hydrochloride produce no alterations in blood pressure and only slight cardiac stimulation. The actions on the central nervous system are minor, some patients become drowsy whereas others may be wakeful and nervous. Dryness of the mouth, nausea and faintness are less common side effects.

Dosage — Adults, 50 to 100 mg, repeated, if required, every three or four hours. For children a dose of 25 to 50 mg is recommended.

Tests and Standards —

Physical Properties — Methoxyphenamine hydrochloride is a crystalline white powder which is odorless and bitter. It melts between 124 and 128°C. It is freely soluble in alcohol, chloroform and water and slightly soluble in ether and benzene. The *pH* of a 5 per cent solution is between 5.3 and 5.7.

Identity Tests — Place about 0.1 Gm of methoxyphenamine hydrochloride in a 10 ml distilling flask and add 5 ml of hydrochloric acid (55 to 58 per cent). Distil over a low flame and collect about 2 ml of distillate. A globule of methyl iodide collects at the bottom of the receiver (presence of methoxyl group). Dilute the residual solution in the flask with 5 ml of water and cool to 10°C. Add a few drops of an acid solution of diazotized *p*-nitroaniline (free of nitrous acid) and make the solution alkaline with sodium carbonate T.S. A bright orange red precipitate forms (presence of hydroxyphenyl group).

Purity Tests — Dry about 1 Gm of methoxyphenamine hydrochloride accurately weighed in a vacuum over phosphorus pentoxide at room temperature for 24 hours. The loss in weight is not more than 0.5 per cent.

Char about 1 Gm. of methoxyphenamine hydrochloride accurately weighed. Cool the residue, add a few drops of sulfuric acid and ignite. The amount of residue present is not more than 0.5 per cent.

Assay (Methoxyphenamine) — Transfer about 0.25 Gm of methoxyphenamine hydrochloride accurately weighed to a 500 ml Kjeldahl flask and add 20 ml of distilled water. Connect the flask to a steam distillation apparatus and add 10 ml of 50 per cent sodium hydroxide. Distil with a rapid current of steam until about 150 ml of distillate has been collected in a conical flask containing 20 ml of 0.1 *N* sulfuric acid and 5 drops of methyl red T.S. Titrate the excess acid with 0.1 *N* sodium hydroxide to a salmon pink endpoint. Each ml of 0.1 *N* sulfuric acid consumed is equivalent to 0.02157 Gm of methoxyphenamine hydrochloride. The amount of methoxyphenamine hydrochloride present is not less than 98 nor more than 102 per cent.

(Chlorine) — Accurately weigh about 0.25 Gm of methoxyphenamine hydrochloride and determine the chlorine content by the method of U. S. P. XIII, page 489. The amount of chlorine present is not less than 16.25 nor more than 16.65 per cent.

METHOXYPHENAMINE HYDROCHLORIDE TABLETS

Assay — Accurately weigh a quantity of powdered tablets equivalent to 0.25 Gm of methoxyphenamine hydrochloride and proceed as directed in the assay in the monograph for Methoxyphenamine Hydrochloride but add a few drops of silicone type antifoam agent before starting the distillation. The amount of methoxyphenamine hydrochloride present is not less than 95 nor more than 105 per cent of the labeled amount.

THE UPJOHN COMPANY, KALAMAZOO 99 MICH

Tablets Orthoxine Hydrochloride 0.1 Gm

METHYLCELLULOSE-NF — Cellothyl (CHILCOTT) — Syncelose (BLUE LINE) — Methylcellulose is a methyl ether of cellulose containing not less than 26 per cent and not more than 33 per cent of methoxyl groups (OCH_3)' — NF

For description and standards see the National Formulary under Methylcellulose.

Actions and Uses — Methylcellulose is used in chronic constipation. This state usually results from a combination of nervous tension, improper dietary and fluid intake, failure to heed the call to stool, lack of exercise and the abuse of laxatives; hence the administration of drugs should be only an adjunct to re-educative measures.

The drug taken with water, forms a colloidal solution in the upper alimentary tract; this solution loses water in the

colon to produce a gel which increases the bulk and blandness of the stool. In the course of a few days the patient may be able to resume more normal bowel habits. The drug is customarily continued for weeks or months often at reduced dosage. The gelatinous nature of the colonic contents which results from the use of methylcellulose may be helpful in patients with colostomies.

Dosage — For adults 1 to 15 Gm in the form of tablets or granules with water two to four times daily; later 1.5 Gm once or twice daily may be sufficient.

For infants and children 0.5 Gm as granules, sprinkled on food or stirred in water, two to three times daily.

THE BLUE LINE CHEMICAL CO., ST. LOUIS

Tablets Syncelose 0.5 Gm

CHILCOTT LABORATORIES, DIVISION OF THE MALTINE CO., MORRIS PLAINS, N. J.

Tablets Cellothyl 0.5 Gm

U. S. trademark 428 768

PENICILLIN FOR PARENTERAL USE IN AQUEOUS SOLUTION (See New and Nonofficial Remedies 1949, page 150)

The following dosage form has been accepted.

LEDERLE LABORATORIES, PEARL RIVER, N. Y.

Crystalline Sodium Penicillin G (Buffered) Vials of 1,000,000, 2,000,000 and 5,000,000 units. Buffered with sodium citrate.

PENICILLIN FOR PARENTERAL USE FOR PROLONGED ACTION (See New and Nonofficial Remedies 1949, page 153)

The following dosage forms have been accepted.

BIO-RAMO DRUG COMPANY, INC., BALTIMORE

Crystalline Procaine Penicillin G in Oil 1 cc and 10 cc vials. 300,000 units in each cc of sesame oil with 2 per cent aluminum monostearate.

Crystalline Procaine Penicillin G in Oil 10 cc vials. 300,000 units in each cc of peanut oil with 2 per cent aluminum monostearate.

PARKE, DAVIS AND COMPANY, DETROIT

Crystalline Procaine Penicillin G in Oil 1 cc disposable syringes and 10 cc vials. 300,000 units in each cc of sesame oil with 2 per cent aluminum monostearate.

PENTOBARBITAL SODIUM (See New and Nonofficial Remedies 1949, page 461)

The following dosage form has been accepted.

E. S. MILLER LABORATORIES, LOS ANGELES

Tablets Pentobarbital Sodium 100 mg

Capsules Pentobarbital Sodium 50 mg and 100 mg

PROTEIN HYDROLYSATES (See New and Nonofficial Remedies 1949, page 413)

The following dosage form has been accepted.

WINTHROP STEARNS, INC., NEW YORK

Solution Parenamine 6% 1,000 cc. bottles. A solution containing 6 Gm of casein hydrolysate in each 100 cc. The preparation consists essentially of amino acids prepared by acid hydrolysis.

SODIUM ASCORBATE INJECTION (See New and Nonofficial Remedies 1949, page 562)

The following dosage form has been accepted.

TESTACAR AND COMPANY, INC., DETROIT

Solution Sodium Ascorbate 10 cc vials. A sterile aqueous solution containing 100 mg of sodium ascorbate in each cc. Preserved with 18 mg of methylparaben and 0.2 mg of propylparaben.

STREPTOMYCIN (See New and Nonofficial Remedies 1949, page 159)

The following dosage form has been accepted.

PREMO PHARMACEUTICAL LABORATORIES, INC., SOUTH HACKENSACK, N. J.

Nebutabs Streptomycin Sulfate Each tablet contains streptomycin sulfate equivalent to 0.1 Gm of streptomycin base. For aerosol therapy.

THE JOURNAL OF THE
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SATURDAY, JULY 8, 1950

SAN FRANCISCO MEETING OF THE
AMERICAN MEDICAL ASSOCIATION

The San Francisco meeting was one of the most successful in the history of the American Medical Association. Held June 26-30, this meeting brought more than 25,000 persons in the first three days to San Francisco. By the end of the second day more than 9,300 physicians had registered, including guests, the total registration in this time was approximately 20,000, with two days of the meeting remaining. The largest previous registration of physicians in the Association's history was 15,667 in Atlantic City in 1947, at which time the Centennial meeting of the Association was held. The second largest registration was in Atlantic City in 1949 at which time 13,221 registered. In addition to members and Fellows of the Association, thousands of guests, such as members of the physicians' families, students, members of related professions, exhibitors and others, made up the attendance.

Three major activities drew capacity attendances. The House of Delegates, which consists of 198 members, was apparently the subject of considerable new interest, as more and more members of the profession personally visited the House during its sessions to learn firsthand the actions taken by this democratic body. At every session the meeting room was filled with an alert and interested audience, whose attentiveness clearly indicated the interest of this group in the questions, resolutions and discussions offered by the members of the House.

Bishop Karl Morgan Block delivered the invocation at the opening session of the ninety-ninth meeting of the American Medical Association.

Included in some of the more important actions of the House were: Adoption of a report on displaced persons, authorization of a student American Medical Association, the Board of Trustees to initiate the organization of such a body, adoption of reports on medical education and medical practice in England, these to be published in early issues of THE JOURNAL, adoption of a modified report of the Committee on Hospitals and the Practice of Medicine which denounces systems whereby hospitals hire salaried physicians for medical

care and bills the patients for this care, refusal to support the Association of Interns and Medical Students as presently constituted, support of the World Medical Association, criticism of some hospitals which make membership in specialty boards a requisite for appointment or advancement and approval of continuation of the National Education Campaign during 1951 with the firm of Whittaker and Baxter as directors of the campaign. At the same time the Board of Trustees was authorized to proceed with expansion of the A M A's Department of Public Relations and authority was granted to expand some of the special committees of the Council on Medical Service in anticipation of eventual discontinuance of the National Education Campaign.

The House also voted to include subscription to THE JOURNAL in membership dues and to set dues for 1951 at \$25, the rate for 1950. The status of Fellowship was referred to an interim committee for study and reporting back to the House at the December 1950 meeting. It also chose New York City for the annual convention in 1953. Some idea of the activity of the House can be gained from the fact that in one day it transacted 74 pieces of business.

Among the officers elected by the House of Delegates were John W. Cline of San Francisco, Calif. President-Elect, R. B. Robins of Camden, Ark. Vice President, George F. Lull, Chicago, reelected Secretary, J. I. Moore, Chicago, Treasurer (reelected), F. B. Borzell, Philadelphia, Speaker of the House of Delegates (reelected), James R. Reuling, Bayside, N. Y., Vice Speaker (reelected), and Leonard Larson of Bismarck, N. D., and Thomas P. Murdock of Meriden, Conn. to the Board of Trustees.

The scientific meetings contained papers of national and international significance. Not only were the papers and exhibits of great interest to the members of the medical profession—they were of outstanding public interest, it one can judge by the newspaper reporting. More than 300 papers were presented and 157 scientific exhibits offered to those interested in all phases of medical practice. The 1,492 authors and participants provided a total of 4,700 hours of lectures and demonstrations, truly an intensive postgraduate course for everyone. These scientific activities attest the interest and willingness of the participants to offer their knowledge for others. Particular credit is due the leadership of the Council on Scientific Assembly under the able chairmanship of Henry Viets. An indication of the extensiveness of the program can be obtained from the Convention number of THE JOURNAL (May 20).

The 304 technical exhibits were also well attended. In fact many of the exhibitors said that to their knowledge their booths were visited by a more searching crowd than ever before in the history of the American Medical Association meetings. The 304 technical exhibits and 150 scientific exhibits covered more than 100,000 square feet.

Many radio broadcasts were transmitted as a result of the meeting. Included were discussions on parent-child relationships, modern use of drugs, progress report on American medicine, modern treatment for rheumatoid arthritis, the battle against blindness and length of life. Numerous television programs also were arranged locally. Some were telecast over networks from the East.

These are only a few of the highlights of American Medical Association meetings. Many other activities could be reported. However, the Proceedings of the House of Delegates will be published in subsequent issues of *THE JOURNAL*, the first to appear in the July 15 issue. Many of the resolutions that were considered by the House of Delegates were mentioned in earlier issues of *THE JOURNAL*. The actions on these resolutions and on those newly introduced to the House will be reported in the Proceedings of the House. They, like the other phases of the Association's activities, reflect without question the importance of the American Medical Association in scientific, socioeconomic and other affairs. This leadership stems from the work and interest of the individual physician. It is only through his support and attendance at county, state and national meetings that such preeminence is possible.

Of additional interest to many physicians will be the change in meeting place for the 1950 interim meeting or Clinical Session. Because of difficulties arising in Denver, the meeting will not be held there this year but in Cleveland, Ohio, December 5-8. Further details concerning this session will be published at a later date in *THE JOURNAL*.

READ THE LABELS

From time to time accidents are reported because of failure to read labels of potent drugs before these drugs are injected. While it is true that a physician is generally advised against the use of a drug unless he is familiar with its action, the fact remains that many potent remedies which are familiar to him are made available in a variety of dosage forms and doses which are not always readily apparent unless the label is examined carefully. Attempts have been made from time to time by, for example, the use of colored labels and cautionary statements to warn the user at a glance of the nature of the product he is using. Various suggestions have been made by physicians, pharmacists, drug manufacturers, law enforcement officers, hospital officials and others, but so far a completely satisfactory solution has not been offered. It is still necessary for the physician or whoever uses or prepares a drug to carefully read a label to learn what he is using. Some have proposed the use of different colors, for example red for intravenous use only, white for subcutaneous

and intramuscular use and blue for intravenous, subcutaneous or intramuscular use. Others have suggested tinting the solutions. Of course the use of colors is limited by memory and by the number of colors available. It probably never would be possible to get sufficient distinctive colors to differentiate all solutions, let alone the variety of strengths of each drug. As has been pointed out by some, the coloring of liquids probably would only encourage laziness, indifference or a false sense of security. Others have proposed the use of diagonal lines.

Many educators, practicing physicians and organized groups, such as the Council on Pharmacy and Chemistry, have attempted to draw attention to the hazards associated with the use of dangerous drugs, to the need for using informative names and for providing, if possible, adequate cautionary statements on labels. However, the consensus probably can be summarized thus: There is no easy shortcut. Nothing can take the place of constant vigilance and careful reading of labels. It cannot be too strongly impressed on all who handle drugs that any drug can be dangerous if incorrectly used and that reliance cannot necessarily be placed on someone else to do the reading and provide adequate safeguards. One can avoid errors only by acquiring a habit of deliberately checking the label of any drug used rather than relying on its appearance or on the verbal statement of an associate. The manufacturer or whoever prepares drugs should label them properly, and the person administering the drug should read the label. If a solution or other dosage form looks questionable it should be discarded, or if a label becomes detached and one cannot be sure of the nature of a drug it should not be used. The use of colors alone would not solve the problem as there are comparatively few persons who have a sufficiently good color perception and memory for shades to allow them to safely differentiate between six, twenty or thirty colors.

Many drug manufacturers have given careful consideration to the creation of labels which would be as significant as one could make them, but these efforts depend in the final analysis on the physician's reading the label before he uses a drug. While the fear of litigation and the possibility of heavy damages may have in some instances a sobering effect on the attentiveness of a physician, part of the remedy lies in impressing on medical students, interns and residents the dangers associated with the misuse of drugs, developing a heightened awareness of the possibility of danger in the mind of the practitioner and the encouragement of habits in the hospital and in private practice which tend to keep to a minimum possibilities of confusion. The misuse of a drug may mean loss of a life. It is the responsibility of the medical profession to save lives if possible and anything that it can do to prevent an accidental loss of life supports its primary objective.

Current Comment

THE PRESIDENT-ELECT— DR JOHN W CLINE

At the recent San Francisco session of the American Medical Association, the House of Delegates elected Dr John W Cline, assistant clinical professor of surgery at Stanford University Medical School, as President-Elect of the Association. Dr Cline was born in California on July 2, 1898. He was graduated from the University of California in 1921 and from Harvard Medical School in 1925. After serving as house officer for two years at the Massachusetts General Hospital in Boston and for two additional years as a resident surgeon at Bellevue Hospital in New York, Dr Cline located in San Francisco, where he has since engaged in the practice of medicine. He is on the staff of the Stanford University Hospital, is assistant visiting surgeon at the San Francisco Hospital and associate surgeon at the Children's Hospital. Dr Cline has for many years been active in organized medicine, serving as president and director of the San Francisco County Medical Society, as president of the California Medical Association and on the council of the California Medical Association for several years, and he is now a member of the Cancer Commission of that Association. He has been a member of the House of Delegates of the American Medical Association since 1945, is now a member of the Campaign Coordinating Committee and was co-chairman of the local committee on Arrangements for the recent San Francisco session. He is a member of American College of Surgeons and the Pacific Coast Surgical Association and is a diplomate of the American Board of Surgery.

OATH OF OFFICE OF THE PRESIDENT OF THE AMERICAN MEDICAL ASSOCIATION

For the first time in the history of the American Medical Association the incoming president received an oath of office. This oath, which was repeated by Dr Elmer L Henderson reads:

"I solemnly swear that I shall carry out the duties of the office of President of the American Medical Association to the best of my ability. I shall strive

constantly to maintain the ethics of the medical profession and to promote the public health and welfare. I shall dedicate myself and my office to improving the health standards of the American people and to the task of bringing increasingly improved medical care within the reach of every citizen. I shall uphold the Constitution of the United States and the Constitution and By-Laws of the American Medical Association at all times. I shall champion the cause of freedom in medical practice—and freedom for all my fellow Americans. I do solemnly swear that I will discharge

the duties of this office to the best of my ability, so help me God. This oath and the President's inaugural address were offered in a public ceremony held on June 27 while the House of Delegates was in session. The President's remarks, the call to order of the House by Francis F Borzell, Speaker of the House of Delegates, the introductory remarks by Louis H Bauer, Chairman of the Board of Trustees, and the farewell address of the retiring president, Dr E E Irons were broadcast over the ABC and Mutual networks. The President's speech appeared in the July 1 issue of THE JOURNAL. The introductory remarks by Dr Bauer and the farewell address of Dr Irons will appear in subsequent issues of THE JOURNAL when the proceedings of the House of Delegates are reported.



JOHN W CLINE, M D

PRESIDENT ELECT OF THE AMERICAN MEDICAL ASSOCIATION

INVESTIGATION OF THE FEDERAL SECURITY AGENCY

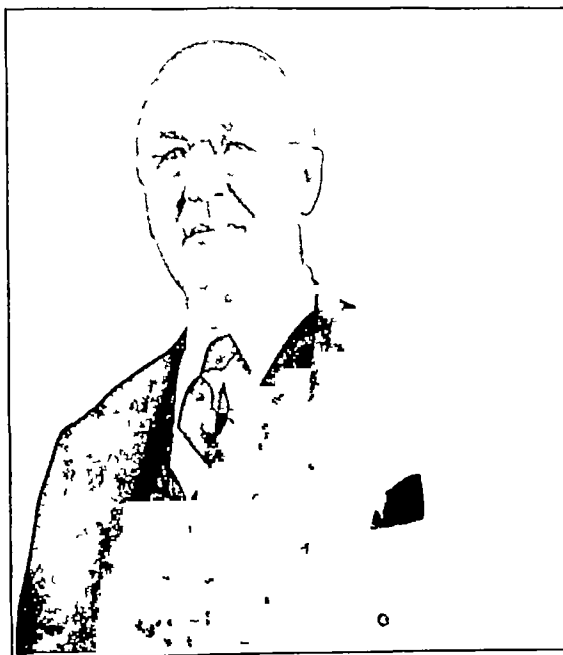
According to a report just released by the House Subcommittee on the subject of executive departments and agencies it was the unanimous opinion of this subcommittee that the Federal Security Agency is mismanaged, its staff engaged in propaganda and the agency inefficient, wasteful and overstuffed. This committee consists of three Democrats and two Republicans. To quote in part from the report: "Many if not all these shortcomings and discrepancies are known to top FSA officials, some of whom fail to bring about corrections because they 'are wary of making decisions that will reduce employment or incur the ill will of a colleague or of a particular group with whom they disagree.'" Other FSA executives are reported to be "evasive and tend to defend the prevailing circumstances regardless of the preponderance of evidence to

the contrary. Documentary evidence secured in the agency reveals that some of the field service employees feel that a disproportionate part of their time is spent in public relations. With few exceptions, the management improvement activities of the agency operate in an atmosphere of uncertainty. The various units are frustrated and disorganized. Under the present arrangement they are not producing in proportion to their cost. These findings must be embarrassing for the F S A man who would like to be head of this country's health education and security.

EVARTS GRAHAM AWARDED DISTINGUISHED SERVICE MEDAL

At the annual meeting in San Francisco June 26 the House of Delegates of the American Medical Association awarded the Distinguished Service Medal to Dr Evarts A. Graham for many years professor of surgery at Washington University School of Medicine in St. Louis. Dr. Graham first won international recognition in 1924 for his work in developing a method for roentgen visualization of the gallbladder. He was born in Chicago March 19, 1883, the son of a professor of surgery at Rush Medical College. D. W. Graham. After receiving his academic degree at Princeton University, he entered Rush Medical College, where he received his medical degree in 1907. He interned at the Presbyterian Hospital in Chicago, then became a fellow in surgery, an assistant in surgery, a member of the staff of the Otho S. A. Sprague Memorial Institute for Clinical Research and then was an instructor in surgery at Rush for several years at the same time assisting his father at the Saturday clinic in the old Rush College amphitheater. Dr. Graham has been professor of surgery at Washington University School of Medicine since 1919 and surgeon in chief at Barnes Hospital, from which place he and J. J. Singer in 1933 reported in *THE JOURNAL* the first successful removal in one stage of an entire lung for carcinoma of the bronchus. Dr. Graham together with Warren H. Cole introduced cholecystography in 1924, a method now known as the Graham-Cole test, the report of which also was first published in *THE JOURNAL*, Feb. 23, 1924. Since his student days he has been interested in research. He was a member of the National Research Council Medical Fellowship Board from 1925 to 1939, was chairman of the Committee on Surgery from 1940 to 1946 and is a member of the Society for Clinical Research. He was selected to give the Harvey Society lecture in 1924 and 1934, the Mutter lecture in 1924, the McArthur

lecture in 1926, the Shattuck lecture in 1928, the Alvarez lecture in 1930, the Joyce lecture in 1931, the Bevan lecture in 1932, the Caldwell lecture in 1933, the Balfour lecture in 1935, the Judd lecture in 1937, the Lister oration before the Royal College of Surgeons of England in 1947, the Churchill lecture in 1947 and the James Ewing lecture in 1950. Six universities—Pennsylvania, Chicago, McGill, Western Reserve, Princeton and Cincinnati—have conferred on him an Sc.D. degree, Yale has granted him an M.S. and Central College an LL.D. Dr. Graham has been awarded the Gross Prize in surgery, the Leonard prize by the American Roentgen-Ray Society, the gold medal of the American Radiological Society, the gold medal from the St. Louis Medical Society, the gold medal of the Southern Medical Association for scientific research, the John Scott medal by the City of Philadelphia, the St. Louis award and the Lister



EVARTS A. GRAHAM, M.D.

AWARDED DISTINGUISHED SERVICE MEDAL

medal of the Royal College of Surgeons of England. He has received also the Roswell Park gold medal of the Buffalo Surgical Society, the gold medal of the College of Chest Physicians and the gold medal of the Mississippi Valley Medical Society, also, the Charles Mickle honorary fellowship for 1943 from the University of Toronto. He served the American Medical Association as co-editor of the *Archives of Surgery* from 1920 to 1945 and was chairman of the Section on General and Abdominal Surgery in 1925. He has been editor of the *Journal of Thoracic Surgery* since 1931 and was co-editor of the *Annals of Surgery* from 1935 to 1945. During World War I, Dr. Graham entered the medical corps of the United States Army as a captain and was promptly promoted. He served with the school of neurologic surgery in Chicago, did research on empyema at Baltimore and later served in France as commanding officer of Evacuation Hospital No. 34. During World War II he was a member of the committee appointed by the Secretary of War to study the activities of the Medical Department of the Army. Dr. Graham organized and was the first chairman of the American Board of Surgery. He was a member of the National Board of Medical Examiners for nine years. He is a past president of the American Surgical Association, of the American College of Surgeons, of the American Association of Thoracic Surgery and of the St. Louis Association of Surgeons. He is a member of the National Academy of Sciences and of the American Philosophical Society. Dr. Graham has practiced medicine in the tradition of the true physician. He is an honor to his profession and to his country.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Portrait of Dr Kerr—A portrait of Dr William J Kerr, chairman of the department of medicine at the University of California Medical School, San Francisco, has been presented to the medical school by colleagues and former students. The painting, which was presented at a recent dinner in Dr Kerr's honor, will be hung in the medical school. Dr Kerr received his bachelor's degree at the University of California in 1912 and his medical degree at Harvard in 1915 and has been on the staff of the medical school in San Francisco since 1916. He has been professor of medicine since 1927 and physician in chief of the University of California Hospital since 1925. The portrait was painted by Alfred Jonniaux last year on the occasion of Dr Kerr's sixtieth birthday.

Personals—A WHO fellowship has been awarded to Dr E Richard Weirnerman, head of the Division of Medical Care Administration at the University of California School of Public Health, Berkeley. Dr Weirnerman will study teaching and research programs in the preventive and social aspects of medicine being carried out by various European universities. Dr Rutherford T Johnstone, Los Angeles, was awarded the American Association of Industrial Physicians and Surgeons' citation for literary achievement at its annual banquet April 27. This honor was bestowed on Dr Johnstone "in recognition of excellence of material and authorship of scientific nature, contributed to the published literature in the field of occupational medicine and industrial health during the year 1949." Dr Merrell A Sisson, San Francisco, has been elected secretary of the X-ray Study Club of San Francisco.

GEORGIA

State Medical Election—At the Macon session of the Medical Association of Georgia in April, Dr Alpheus M Phillips, Macon, was installed as president, Dr William F Reavis, Waycross, was chosen president-elect, Drs Leon D Porch, Macon, and Thomas A Peterson, Savannah, were elected first and second vice presidents, respectively. Dr Edgar D Shanks Sr, Atlanta, continues as secretary-treasurer.

University to Build Medical Research Unit—Erection of a medical research building for Emory University School of Medicine to cost in excess of \$1,500,000 is scheduled to begin soon. The building will have two wings of six and eight stories, the plans include two additional wings which may be constructed in the future if funds become available. Only seven of the 14 floors in the first two units will be completely finished at this time. Of the cost of these units \$500,000 is in the form of a National Cancer Institute grant, made for the specific purpose of providing for cancer research facilities, and the remaining amount has been donated by private sources. The cancer research activities will be housed on the first floor of the new structure, which will also include some research activities of the department of biochemistry of the medical school. The second floor will house the administrative offices of the medical school. Space is being provided for the departments of medicine, surgery, pathology and radiology and for facilities for the handling of radioactive isotopes now being utilized by Emory in medical research.

ILLINOIS

Residents Honor Dr Johnson—More than 4,000 residents of the Casey area turned out to honor Dr Lester H Johnson, who has served the area as physician and community leader for 45 years. A parade was held in the afternoon. Dr Johnson has been township supervisor, a member of the high school board of education and president of the Rotary Club. He is still actively practicing with his two sons. Delegations of doctors and nurses from Terre Haute, Ind., and Effingham joined in the celebration.

School for Children with Brain Injuries—An experimental school for the education of children with brain injuries is to be established as a part of the public school system in Joliet. It is partly financed by the state department of public

instruction. Emphasis will be placed on teaching children to substitute brain centers to perform functions of the damaged parts of the brain. The program will involve testing to determine which brain centers are damaged and in what degree, as well as training and teaching techniques. Joliet has been chosen because of its proximity to Chicago medical centers where physicians will be available for consultation. Quarters for the new school are being prepared in the Lisa Kelly school. The unit will open in September 1951.

Joint Meeting on Socialized Medicine—Medicine, dentistry and pharmacy will join forces in the fight against socialized medicine July 9 at a joint meeting in the Abraham Lincoln Hotel, Springfield. The meeting will be sponsored by the Illinois State Medical Society in collaboration with the Illinois State Dental Society and the Illinois Pharmaceutical Association. Members of women's auxiliaries will also be invited. Representatives of every downstate component organization of the three groups will be present. Moderator of the meeting will be Kaywin Kennedy of Bloomington, past president of the Illinois State Bar Association. Speakers will include U S Senator Karl E Mundt of South Dakota, Dr Rufus B Robins of Camden, Ark., Democratic national committeeman who has consistently opposed the socializing elements of his party, and Dr Ralph J Gampell, British surgeon who abandoned his practice there and came to this country.

Chicago

Medal to Dr Kretschmer—At the recent meeting of the American Association of Genito-Urinary Surgeons in Hershey, Pa., the society presented to Dr Herman L Kretschmer, Chicago, the Keyes Memorial Medal. This award was established in memory of Dr E L Keyes Sr, an outstanding neurologist of his day, as well as teacher, author and the founder of the association. The award was given to Dr Kretschmer in recognition of his outstanding contributions to urology.

New Cancer Research Unit—Dr Philippe Shubik, a graduate of the University of Oxford, England, has been appointed to the faculty of the Chicago Medical School as coordinator of the cancer teaching program. Dr Shubik taught pathology at the Sir William Dunn School of Pathology, Oxford where he was engaged also in cancer research. Since last June he has been instructor of pathology and has been doing cancer research at Northwestern University. Under Dr Shubik's direction a new cancer research unit will be set up, and additional courses on the diagnosis of cancer will be added to the curriculum as well as short courses on experimental work in cancer.

Society News—The Chicago Pediatric Society at its May meeting elected the following officers: Drs Alvah L Newcomb, president, Maxwell P Borovsky, treasurer, and Alfred S Traisman, secretary. The Chicago Roentgen Society elected Dr John H Gilmore, president, Dr Frank L Hussey, vice president, and Dr Benjamin D Braun, secretary for the year 1951. The Chicago Society of Anesthesiologists at its April meeting elected the following officers: Dr Max S Sidov, president, Dr W Allen Conroy, vice president, and Dr Victor Harris, secretary-treasurer. At the annual meeting of the Chicago Society of Internal Medicine in May the following officers were elected: Drs Howard L Alt, president, Frank B Kelly, vice president, Ernest G McEwen, secretary-treasurer. At the annual meeting of the Chicago Gynecological Society in June the following officers were elected: Drs John I Brewer, president, M Edward Davis, president-elect, Paul C Fox, Oak Park, vice president, Fred O Priest, treasurer, and Edward M Dorr, secretary.

Personals—The Philippine Army has assigned Dr Conrad B Rivera to the department of physical medicine and rehabilitation in the University of Illinois College of Medicine for training which will enable him to set up a department of physical medicine and rehabilitation in a general hospital of the Philippine Army. Dr Rivera, a graduate of the University of Santo Tomas College of Medicine and Surgery at Manila, is a captain.

in the Philippine Army Medical Corps Prior to his present assignment he was for four months in training at the Percy Jones General Hospital, Battle Creek Mich, under the direction of the physical medicine service—Dr Robert B Levy, clinical assistant professor of otolaryngology University of Illinois College of Medicine, will present a paper at the meeting of the International Anatomical Congress at Oxford, England July 24-28 The paper is entitled "A Clinical and Anatomical Evaluation of the Sphenoid Palatine Ganglion" During his stay in England Dr Levy plans to make a survey on advance graduate education in otolaryngology at the United Oxford Hospital—Dr Percival Bailey has been reelected chairman designate of the Professorial Faculty of the University of Illinois Chicago Professional Colleges for the 1950-1951 school year Dr Bailey holds the rank of distinguished professor of neurology and neurologic surgery in the college Dr Carl C Pfeiffer, professor of pharmacology and head of the department, was elected secretary

IOWA

The Walter Bierring Award—Dr Walter L Bierring, Des Moines, has been honored for his efforts in the establishment of the Iowa Society for Mental Hygiene by the founding of the Dr Bierring Award, which will be given each year to the organization which has given outstanding mental health service in Iowa

Medical Alumni Meeting—The first All-Medical Alumni Reunion of the State University of Iowa was held at Iowa City June 9-10 In addition to class reunions and other social functions, papers were read by the following alumni Paul C Bucy, professor of neurology and neurosurgery at the University of Illinois Chicago, Richard E Shope, Kingston, N J, A Carlton Ernstene, Cleveland, William A Milner, Albany, Frederick C Greaves, Rear Admiral (MC) U S Navy, Frank R Peterson, now of Cedar Rapids, Edwin G Bannick, Seattle, and H Close Hesselstine, Chicago

LOUISIANA

Medal in Public Health—The 1950 Geiger Medal of Public Health at Tulane University has been awarded to Thomas Stoneham Edwards for his thesis and work concerning "The Epidemiology of Leptospiral Infections" This gold medal bears the coat of arms of the university and of the Geiger family It is presented to a graduate student on the presentation of an acceptable thesis on a public health problem of importance to the southern portion of the United States Mexico Central or South America It was first presented in 1929 and was named for the present director of public health in San Francisco

Society Elections—Officers chosen at a meeting of the New Orleans Graduate Medical Assembly on May 2 include Dr Edwin H Lawson, president Dr Edgar Hull president-elect Drs Charles B Odom, J Kelly Stone and Jules Myron Davidson, first, second and third vice presidents respectively Dr Woodard D Beacham, secretary, and Dr H Ashton Thomas, treasurer, all of New Orleans—The Louisiana State Gynecological and Obstetrical Society reelected Dr Eugen Countiss as president and named Dr Curtis J Lund secretary-treasurer and Dr Isadore Dyer member of the executive committee, all are of New Orleans

MINNESOTA

Certificates of Merit—Certificates of Merit were presented to Drs John L Crenshaw, George B Eusterman James C Masson Arthur U Desjardins and Arthur H Sanford of the Mayo Clinic, Rochester, June 6 These certificates are a token of appreciation from the University of Minnesota for the years of service given by the recipients of these annual awards

Personal—Dr Ruth E Boynton has been named president of the state board of health, succeeding Dr Thomas B Biguth Rochester resigned Dr Boynton has served as director of the Students Health Service at the University of Minnesota, Minneapolis since 1936 and has been professor of preventive medicine and public health since 1938 She has been a member of the State Board of Health since 1939 and served as its president in 1945

Mental Health Program—The first administrative step in the expansion of medical services for Minnesota's mental health program is the appointment of Dr Gordon R Kamman St Paul to the position of a deputy commissioner of mental health, and Dr Lawrence R Gowan Duluth as supervisor consultative services Dr Kamman, in assuming administrative responsibilities will spend half time as deputy commissioner and half time in private practice

NEW YORK

Animals for Medical Research in Buffalo—Some of the unclaimed dogs and cats formerly destroyed in Buffalo will be saved to help scientists at the University of Buffalo School of Medicine and other medical institutions investigate health problems under the terms of an ordinance approved by the city council May 31 Buffalo thus became the twenty-ninth city to assure its health investigators of a dependable supply of animals from its stray dog population Prior to the passage of the ordinance medical scientists were forced to pay exorbitant prices for animals from out-of-state dealers Other major cities which have recently acted to save stray animals to assist medical teaching and research are Omaha Cleveland and Baltimore In Buffalo the Society for the Prevention of Cruelty to Animals receives \$20,000 a year from the city under a contract which provides that the society will pick up stray dogs try to find homes for them and when unsuccessful turn them over to the city for destruction Under the terms of the new ordinance the only change in this arrangement is the decision to save some of the dogs which would be destroyed

New York City

Pediatrics Outpatient Clinic—New quarters for the Pediatrics outpatient clinic on the sixth floor of the OPD Building of Bellevue Hospital were opened June 26 This is an important step in the city health department's program to strengthen its outpatient services for the indigent sick The clinic will operate daily, Monday through Friday, and will be able to take care of 200 to 250 children per day Dr L Emmett Holt Jr director of pediatric service at Bellevue Hospital, will be in charge of the clinic A feature of the new service is an appointment system to reduce the waiting time of patients to a minimum The new quarters provide small waiting rooms, instead of one large one, to prevent cross infections, single examining rooms and laboratory and x-ray facilities

Medical College Fellowship Awards—Four fellowships for the academic year of 1950-1951 have been awarded by the faculty of New York Medical College Flower and Fifth Avenue Hospitals to Drs C Donald Kuntze, Forris B Chick, Edward J Nightingale and Fey Chu, all of New York Dr Kuntze and Dr Chick received teaching fellowships in obstetrics and gynecology and in medicine, respectively These two new fellowships, recently established for special training, are supported by the college and will be awarded annually Both physicians were graduated from New York Medical College, Flower-Fifth Avenue Hospitals in March 1946, both have just returned from overseas service with the U S Army stationed at the 97th General Hospital in Frankfurt Germany Dr Nightingale and Dr Chu received U S Public Health grant fellowships Dr Nightingale in medicine and Dr Chu in surgery

Personals—Dr Oswald S Lowsley, New York was awarded the Southern Cross with the grade of *commandadore* by his Excellency Sir Mauricio Habuco the Brazilian ambassador, in Washington D C, June 9 This award was made for the instructions Dr Lowsley has given Brazilian doctors who have studied with him and for his interest in promoting good relationships with Brazil and other Latin American countries—Dr Currier McEwen, since 1937 dean of New York University College of Medicine received in June the honorary degree of Doctor of Science from Wesleyan University where he completed undergraduate work in 1923—Dr John H McClement, New York is the first winner of the James Alexander Miller Fellowship for Research in Tuberculosis recently established by the New York Tuberculosis and Health Association Dr McClement is an associate in medicine Columbia University College of Physicians and Surgeons, and assistant visiting physician chest service Bellevue Hospital He received his Doctor of Medicine degree from the University of Rochester School of Medicine and Dentistry in 1943 For the past year he has been associated with Dr Andre Courmand in the cardiopulmonary laboratory at Bellevue

NORTH CAROLINA

University Appointment—Philip Handler, Ph D has been named professor of biochemistry and nutrition and chairman of the department of biochemistry in the Duke University School of Medicine Durham Dr Handler who joined the Duke staff in 1939 as associate in physiology nutrition and biochemistry, succeeds the late William A Perlzweig Ph D who died last December A native of New York, Dr Handler received his BS degree from the City College of New York in 1936 and MS and Ph D degrees from the University of Illinois in 1937 and 1939

PENNSYLVANIA

Honor General Practitioner—Friends and associates of Dr George F Potteiger of Hamburg, recently honored him on the completion of 60 years in the general practice of medicine. He was honor guest at the local Exchange Club dinner and was cited for outstanding service to his community.

New Heart Clinic—Children's Heart Haven, an eight ward convalescent home for children with rheumatic fever and heart disease, was dedicated March 30 in the city of Lancaster. First patients were admitted April 3. Dr Norris W Vaux, state secretary of health, spoke at the ceremonies.

Society Election—At the recent meeting of the Pennsylvania Academy of Ophthalmology and Otolaryngology the following officers were elected: Dr Jay G Linn, Pittsburgh, president, Dr Mathew S Ersner, Philadelphia, president-elect, Dr Daniel S DeStio, Pittsburgh, secretary, and Dr Bruce A Grove, York, treasurer.

Philadelphia

Personal—Dr Elizabeth K Rose assumed new duties recently as chief of the Division of Child Hygiene of the Department of Public Health of Philadelphia. She is affiliated with the hospital of the University of Pennsylvania as chief of nursery service and is assistant professor in pediatrics at the University of Pennsylvania School of Medicine.

Dr De Palma Succeeds Dr Martin—Dr Anthony F De Palma, assistant professor at Jefferson Medical College, has been appointed James Edwards professor of orthopedic surgery, succeeding Dr James R Martin, who retired at the end of the school year to become emeritus professor. Dr De Palma graduated from Jefferson in 1929 and interned at Philadelphia General Hospital. He was attending orthopedic surgeon on the staffs of five New Jersey hospitals from 1935 to 1942 and served as commander in the Navy from 1942 to 1946. For research on the shoulder joint conducted in collaboration with others Dr De Palma was awarded the Gold Medal in 1948 and the Second Prize in 1950 by the American Academy of Orthopaedic Surgeons.

SOUTH CAROLINA

State Medical Election—At the annual session of the South Carolina Medical Association held at Myrtle Beach in May Dr William R Tuten of Fairfax was installed as president. The following officers were elected for the coming year: Dr Joseph D Guess, Greenville, president-elect, Dr Nathaniel B Heyward, Columbia, secretary, Dr Julius H Stokes, Florence, treasurer, and Mr M L Meadors, Florence, executive secretary. Dr Julian P Price of Florence had asked to be relieved of his position as secretary-treasurer after serving ten years, he will continue as editor of the state journal.

SOUTH DAKOTA

Soroptimists Club Award—Dr Mary A Price of Armour was awarded the north central region postgraduate fellowship of the Soroptimists Clubs. Dr Price won the award, \$1,500, in competition with nominees from Minnesota, South Dakota, Iowa and Nebraska. She will take postgraduate work in obstetrics at Cook County Hospital in Chicago. This award is the first of its kind to be granted by the club.

TEXAS

Bone Bank—The Duane A Meier Bone Bank, made possible through anonymous donations, has been established in Hermann Hospital of the Texas Medical Center, Houston. Dr Meier, for whom the bone bank has been named, was a promising young orthopedic surgeon who died suddenly in April. The Bone Bank will be operated by the orthopedic department of the hospital.

State Medical Election—Officers of the State Medical Association of Texas as elected at the recent annual meeting are as follows: Drs William M Gambrell, Austin, president, Allen T Stewart, Lubbock, president-elect, Hall Shannon, Dallas, vice president, Thomas H Thomason, Fort Worth, reelected treasurer and Robert B Homan Jr, El Paso, reelected speaker of the House of Delegates. The secretary has not yet been chosen.

VIRGINIA

Horsley Research Award—The Virginia Academy of Science on May 12 presented its annual J Shelton Horsley research award to Erling S Hegre, Ph D, associate professor of embryology at the Medical College of Virginia, Richmond. Dr Hegre won the award for developing motion picture photography of serial slicing of embryos. Scientists selected Paul M Patterson, Ph D, chairman of the department of natural

science at Hollins College as president-elect of the academy. Dr Guy W Horsley, a surgeon at St Elizabeth's Hospital, Richmond, became the president of the academy. His father, Dr J Shelton Horsley, after whom the research award is named, was a founder and the fourth president of the group.

WEST VIRGINIA

Reorganize State Health Department—The state Board of Health on June 9 approved the recommendations of Dr Newman H Dyer, state director of health for the reorganization of divisions and bureaus and revision of health regulation. Under the reorganization plan the divisions of cancer control and of communicable disease control and the Bureau of Tuberculosis Control are combined in the new Bureau of Disease Control. The Division of Sanitary Engineering and the Bureau of Industrial Hygiene are merged in the new Bureau of Environmental Sanitation. The nutrition service of the state health department, formerly administered through the Division of Maternal and Child Health will function as a separate bureau. The reorganization plans will not affect present personnel.

Personals—Dr Newman H Dyer, Charleston, state director of health, has been appointed special consultant to Surgeon General Leonard A Scheele and other officials of the U S Public Health Service. He, with seven other health officers in the United States, will be on call for consultant service limited to 130 working days in any fiscal year. No salary is attached. These health officers comprise the executive council of the Association of State and Territorial Health Officers. Dr Dyer was elected a member of the council in 1949. Dr Joseph P Webb of Huntington, who has served as medical director at the Chesapeake and Ohio Hospital since 1945, has resigned to accept appointment as research director for the Upjohn Company, Kalamazoo, Mich. Dr Webb was formerly an instructor in medicine and a research fellow in aviation medicine at the University of Cincinnati College of Medicine.

Report on Medical School Survey—Separate reports concerning the advisability of constructing and maintaining a four year school of medicine and dentistry in West Virginia were submitted to a legislative interim committee and its advisory committee at a joint session held in the Senate Chamber in Charleston June 7. They were prepared by Dr Herman G Weiskotten, dean of Syracuse (N Y) University College of Medicine, and Dr Wilburt C Davison, dean of Duke University School of Medicine, Durham, N C. Dr Weiskotten and Dr Davison reported that a four year school of medicine is needed and recommended that plans be made immediately for a building program. The estimated cost of the building program outlined by the two deans would amount to \$6,000,000 to \$10,000,000 depending on location and use of possible available hospital facilities. It is estimated that the cost per annum of maintaining a school of medicine and dentistry would be approximately \$750,000. Charleston was a recommended site for the new school. The board of public works recommended to the 1949 legislature that the sum of \$2,000,000 be appropriated for the proposed school and \$1,900,000 for a hospital to be built in connection therewith. No action was taken by the legislature and available funds in the surplus account were appropriated for other purposes.

WISCONSIN

Lecture on Child Psychiatric Clinics—The Medical School Society of the University of Wisconsin Medical School in cooperation with the Wisconsin Mental Health Authority and the Dane County Medical Society will present a lecture by Dr H Whitman Newell, associate professor of psychiatry at the University of Maryland Medical School in Baltimore. Dr Newell's subject will be "Principles in Practices Used in Child Psychiatric Clinics." The meeting will be held August 1 at 8 p m in the auditorium of the Student Memorial Union Building, Madison. All interested persons are invited.

PUERTO RICO

Progress of BCG Vaccination Program—The BCG program of vaccination has been extended to 42 of the 77 municipalities in Puerto Rico. At the end of the school year a total of 19,924 children had been vaccinated. Dr Fernando Pavón, who studied the technic of vaccination with BCG in Denmark, has returned to the island and will aid in the program.

Hospital Program—Nine out of 10 buildings now available at the Puerto Rico Insular Insane Asylum at Rio Piedras near San Juan will be reconstructed with federal and insular government funds totaling over \$6,000,000. The first stage of this project provides for the reconstruction of an administration building, one building for tuberculosis patients, three industrial buildings, one building for inactive patients and two buildings

for patients with chronic diseases. The second stage calls for remodeling and repairing of nine buildings now in use and the construction of a new unit for occupational therapeutics and a storage place and a modern auditorium. The project has been approved by the Puerto Rico planning board, the Insular Health Department and the U S Public Health Service.

GENERAL

Consultant to Health Information Foundation—Dr Alfred M. Hellman, former president of the Medical Society of the County of New York, has been appointed medical consultant to the Health Information Foundation. Dr. Hellman, a graduate of the College of Physicians and Surgeons of Columbia University, New York, is a former member of the editorial board of *New York Medicine* and consulting gynecologist and obstetrician of Lenox Hill Hospital.

Society Elections—At the May meeting of the Association for American Physicians, Dr. Hugh J. Morgan, professor of medicine at Vanderbilt University, Nashville, was elected president and Dr. Oswald H. Robertson of Stanford University School of Medicine, San Francisco, vice president. At the annual meeting of the American Electroencephalographic Society in June the following officers were elected for the ensuing year: Dr. Robert S. Schwab, Boston, president; Dr. James L. O'Leary, St. Louis, vice president; Dr. John A. Abbott, Boston, secretary; and Mary A. B. Brazier, Boston, treasurer.

Ortho Award—The American Society for the Study of Sterility offers an annual award of \$1,000 known as the Ortho Award for an outstanding contribution to the subject of infertility and sterility. Competition is open to those in clinical practice as well as persons whose work is restricted to research in the basic sciences. Essays submitted for the 1951 contest must be received not later than March 1, 1951. The prize essay will appear on the program of the 1951 meeting of the society. For particulars address the American Society for the Study of Sterility, 20 Magnolia Terrace, Springfield, Mass.

International Syphilis Seminars—Two international syphilis seminars will be held next September in Helsinki and Paris under the auspices of the World Health Organization to promote the exchange of information on numerous aspects for the prevention, diagnosis and treatment of syphilis. The Helsinki seminar, September 4-10, will include 20 to 25 specialists from Denmark, Iceland, Norway, Sweden, the United States and Finland. The Paris meeting, September 25-October 7, will include specialists from Belgium, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, United Kingdom, United States, Switzerland, Yugoslavia and France.

Potomac Society of Anesthesiologists—At a meeting of this society May 31 in Washington, D. C., the following officers were elected for the new year: president, Dr. Donald H. Stubbs, Alexandria, Va.; president-elect, Dr. William E. Bageant, Washington, D. C.; vice president, Dr. John J. Mattare, Chevy Chase, Md.; and secretary-treasurer, Dr. Joel B. Hoberman, Arlington, Va. The society, which was founded in 1948, is composed of over 100 physicians located in Virginia, West Virginia, Maryland and the District of Columbia. The object is to advance the science and art of anesthesiology as well as to stimulate interest and promote progress in the specialty of anesthesiology.

International Meeting on Tuberculosis—The first conference of the International Union Against Tuberculosis to be held since the war is scheduled for Copenhagen, Denmark, September 3-6. The National Tuberculosis Association is the member agency representing the union in the United States and the five NTA representatives on the union's council are Dr. Kendall Emerson, Norwalk, Conn.; Dr. H. Corwin Hinshaw, San Francisco; Dr. Herbert L. Mantz, Kansas City, Mo.; Dr. Esmond R. Long, Philadelphia; and Dr. James E. Perkins, New York. More than 40 other countries also are members. The general program for the conference includes sessions on antibiotics, collapse therapy and priority of measures to be adopted in countries where the campaign against tuberculosis is in its early stages.

Mississippi Valley Essay Contest—Dr. Walfis L. Craddock of Fort Logan, Colo., is the winner of the tenth annual Essay Contest of the Mississippi Valley Medical Society for the best unpublished essay on a subject of practical and applicable value to the general practitioner of medicine. Dr. Craddock's paper is entitled "Applications of Radioactivity in Clinical Medicine." Second prize goes to Dr. William V. Knoll, Duluth, Minn., and third prize to Dr. Albert H. Unger, Chicago. Dr. Craddock will receive a cash award, a gold medal and a certificate of award and will present his essay at the society

meeting in Springfield, Ill., September 27-29. His paper and the papers by Drs. Knoll and Unger will appear in the January 1951 issue of the *Mississippi Valley Medical Journal*.

Board of Obstetrics and Gynecology—At the annual meeting of the American Board of Obstetrics and Gynecology in Atlantic City, N. J., May 21-27, 259 candidates were certified. The numerous changes concerning graduate training in obstetrics and/or gynecology adopted will be of special interest to hospitals conducting residency programs as well as to prospective applicants to this board. The next scheduled examination (part 1), written examination and review of case histories for all candidates will be held on Feb. 2, 1951. Application may be made until November 5. Application forms and bulletins are sent on request made to Paul Titus, M.D., Secretary, American Board of Obstetrics and Gynecology, 1015 Highland Building, Pittsburgh 6.

Respiratory Cancer Mortality—Mortality from cancer of the respiratory system has been increasing more rapidly for men than women with the result that the death rate is almost six times as high for males as for females according to the statisticians of the Metropolitan Life Insurance Company. Both sexes have shown a decided upward trend in respiratory cancer mortality with the death rate among these policyholders rising from 5.6 per 100,000 in 1936 to 10.0 per 100,000 in 1946-1948. Although the increase in mortality has been large for cancers of the bronchus and trachea and for cancers of the lung and pleura, no increase at all was recorded during the past decade for cancer of the larynx. Evidence of progress is found in the increased effectiveness of surgery for lung cancer and the material reduction of operative mortality and in the mounting number of five-year "cures."

WHO Executive Board Members—The World Health Assembly at its Sixth Plenary Session May 19 elected Chile, El Salvador, France, Italy, Pakistan and Thailand to designate technically qualified persons to serve for three years on the Executive Board of the World Health Organization. The terms of office of the following members of the Executive Board expired this year: Brazil, China, Egypt, France, Mexico and the U. S. S. R. Brazil, however, was reelected to designate a person for a one-year term to replace Byelorussian S. S. R. whose member has been absent for the last four meetings. The Executive Board for 1950 consists of members designated by Brazil, Chile, El Salvador, France, India, Italy, Netherlands, Pakistan, Philippines, Poland, Sweden, Thailand, Turkey, Venezuela, Union of South Africa, United Kingdom, United States of America and Yugoslavia.

Society for Medical Research Seeks Funds—The operating funds of the National Society for Medical Research have reached a low level and unless help is received immediately it will be necessary to abandon activities in a large degree. Throughout the country communities and states are considering a public policy favoring the use for experimental purposes of unclaimed animals which would otherwise be killed at public pounds and the demands on the society for information, educational material and staff assistance are tremendous. Continuation of this work means fewer delays and lower cost for medical research and teaching and it means that the anti-vivisection cult is being eliminated as an effective obstacle to medical progress. Contributions needed to help sustain the momentum of current successes should be sent to the secretary-treasurer of the society, Dr. Andrew C. Ivy, 25 East Washington Street, Chicago 2.

Society Elections—The following officers were elected by the American Otological Society for the ensuing year: Drs. Kenneth M. Day, Pittsburgh, president; Gordon D. Hoople, Syracuse, N. Y., vice president; and John R. Lindsay, Chicago, secretary-treasurer. At the April meeting of the American Association of Industrial Physicians and Surgeons the following officers were elected: Drs. Edward H. Carleton, East Chicago, Ind., president; Adolph G. Kammer, South Charleston, W. Va., president-elect; Earle A. Irvin, Detroit, first vice president; George F. Wilkins, Boston, second vice president; Arthur K. Peterson, Chicago, secretary; and Edward C. Holmblad, Chicago, treasurer. At the recent meeting of the American Laryngological Association the following officers were elected: Drs. Gordon B. New, Rochester, Minn., president; and Louis H. Clerf, Philadelphia, secretary. The 1951 meeting will be held at the Green Briar, White Sulphur Springs, W. Va., on May 9-10.

Medical Mission—The Unitarian Service Committee, Inc., has arranged a medical mission to Germany June 16-August 11. Dr. Erwin W. Straus of the Veterans Hospital in Lexington, Ky., is chairman of the group and Dr. Alfred Farah of the University of Washington, Seattle, is vice chairman. Other

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physicians who will lecture in Germany, Marburg, Berlin, Frankfurt, Tuebingen Hamburg and Bonn are Halvor N Christensen Ph.D Tufts College Medical School, Boston, Dr John B Dillon, University of Southern California, Los Angeles, Thomas R Forbes, Ph.D, Yale University School of Medicine, New Haven, Conn, Dr William P Longmire Jr, University of California, Los Angeles, Dr Richard H Lyons, Syracuse University, Syracuse N Y, Eric Ogden, Ohio State University College of Medicine, Columbus, Dr Francis F Schwentker, Johns Hopkins University, Baltimore, and Dr James R Willson, Temple University Medical School Philadelphia Lectures will be given on anatomy, anesthesia, biochemistry, internal medicine, obstetrics and gynecology, pediatrics, pharmacology, physiology, psychiatry and surgery

Rocky Mountain Cancer Conference—The fourth annual Rocky Mountain Cancer Conference will be held in Denver July 17-18 with headquarters at the Shirley-Savoy Hotel The preliminary program lists the following invited speakers

- Wolfgang W Zuelzer Detroit General Features of Cancer in Childhood
- Edward S Judd Jr Rochester Minn, Recent Advances in Surgical Treatment of Carcinoma of the Colon
- Grantley W Taylor, Boston Carcinoma of the Breast.
- Lowell S Goin Los Angeles, Place of Radiation Therapy in Management of Malignant Diseases
- Herbert W Schmidt Rochester Minn Tumors of the Trachea and Bronchi
- Lynn A Brewer III, Los Angeles, Carcinoma of the Lung
- Willis J Potts, Chicago Malignancy in Infancy and Childhood from the Surgeon's Standpoint
- Richard W TeLinde Baltimore Early Diagnosis and Present Day Treatment of Carcinoma of the Cervix

There will be round-table luncheons at the hotel and an informal banquet Monday evening at 7 30 There is no registration fee

Tuberculosis in Children Declining—Tuberculosis now claims relatively less than one fifth as many lives among children as it did 20 years ago, statisticians of the Metropolitan Life Insurance Company report The decline in mortality is evident among children at all ages, with the greatest improvement at the school age Increased hospitalization of adults who have contracted the disease is considered largely responsible for the gains In this way children are freed from contact with active cases Other contributing factors are the decline in the prevalence of the disease in adults, the better care and feeding of children and the generally higher standards of living The death rate among the company's industrial policyholders at ages 1 to 14 has dropped from 20.4 per 100,000 in 1930 to 3.7 in 1949 Further improvement is foreseen by the statisticians as a result of present case-finding efforts among adults and more likely hospitalization of cases when discovered Because tuberculosis is so infrequent in children today, mass x-ray campaigns are not economical for detecting the disease Teachers are in the best position for discovering potential cases through observation of youngsters who appear to be generally run-down, especially underweight, and of those with a history of the disease in the family, according to the statisticians Annual health examination of both preschool and school children will likewise aid in the early detection of cases

Decrease in Number of Large Families—There were 164,000 children born in the United States in 1947 who were at least the seventh in their families, Metropolitan Life Insurance Company statisticians report This is about 5 per cent of all births during the year The rate at which births of seventh or higher order occur has dropped by nearly 60 per cent in the past 30 years, with the decline continuing through the war and postwar years Large families are most frequent in the South, according to computations based on data from the National Office of Vital Statistics Ranking first as to the proportion of large families were Kentucky Tennessee, Alabama and Mississippi, where births of seventh or higher order constituted 7.4 per cent of all births among white women in the area and births of tenth and higher comprised 2.1 per cent of the total The percentage of large families was next highest in the South Atlantic and Mountain sections and the lowest in the Middle Atlantic and Pacific states The geographic pattern shows that large families are commoner in the agricultural than in the industrial areas "Large families are two and a half times as frequent in Pennsylvania as in adjoining New Jersey, and more than three times as frequent in Maine and Vermont as in Connecticut The highest proportion of white births of seventh and higher order—11.5 per cent—occurred in New Mexico, while in Nevada, also a Mountain state, the proportion was only 1.6 per cent" Negro women, in general, bear larger families than do the white, with the proportion of Negro mothers having seven or more children about three and a half times as high as for white mothers

Prevalence of Poliomyelitis—Reports of cases of poliomyelitis for the periods indicated have been received from the National Office of Vital Statistics U S Public Health Service

	Week Ended		Total *		Five Year Moving Avg
	June 24 1950	June 25 1949	1950	1949	
United States Total	356	409	1,040	1,790	111
New England States					
Maine		7	1	11	
New Hampshire			1		1
Vermont			1	1	1
Massachusetts		4	5		
Rhode Island			1	1	1
Connecticut	1	1	5		4
Middle Atlantic States					
New York	17	7	6	31	
New Jersey	16	5	25	1	
Pennsylvania	3	2	20	17	1
East North Central States					
Ohio	5		27	7	1
Indiana	3	2	11	11	1
Illinois	5	3	51	8	90
Michigan	4	8	38	20	11
Wisconsin	4	2	20	9	4
West North Central States					
Minnesota	1	16	11	33	10
Iowa	9	4	40	21	10
Missouri	5	7	30	19	11
North Dakota		9		13	
South Dakota		2	6	19	
Nebraska	2	1	26	11	11
Kansas		2	9	9	9
South Atlantic States					
Delaware			1	8	8
Maryland		1	3	5	2
District of Columbia	1		4	2	1
Virginia	3	1	11		3
West Virginia	4	3	18	21	4
North Carolina	5	5	25	27	
South Carolina	15	3	35	19	10
Georgia	1	2	5	14	11
Florida	9	12	49	50	24
East South Central States					
Kentucky	5	4	20	16	11
Tennessee	2	10	14	25	12
Alabama	5	11	25	28	23
Mississippi	9	9	46	54	10
West South Central States					
Arkansas	8	42	33	87	8
Louisiana	2	4	23	36	37
Oklahoma	23	47	38	119	16
Texas	107	113	578	577	202
Mountain States					
Montana		1	2	7	3
Idaho	1	9	13	30	3
Wyoming	6	1	8	5	1
Colorado	3	3	19	14	8
New Mexico	2	7	11	13	4
Arizona	6	3	28	7	1
Utah	1		5	25	6
Nevada			1	2	
Pacific States					
Washington	1	6	5	22	12
Oregon	5	4	21	27	4
California	33	30	215	169	111

* Beginning with the twelfth week of each year

Marriages

- RANDOLPH GRAHAM BRADSHAW, Bluefield W Va, to Miss Alice McClung Moore of Lexington, Va May 20
- JOHN HENRY DEHRTY, New York to Miss Ann Marie Healey at Pelham Bay Park, N Y, June 24
- THOMAS JOSEPH WEILS to Miss Mary Frances Hul Kamp, both of Long Beach, Calif June 17
- GEORGE ERNEST MUEHLECK, New York to Miss Irma Jean Drummheller of St Albans, W Va, June 7
- WARD D COFFMAN JR, Zanesville, Ohio to Miss Patricia D Sayer of Wausau, Wis, April 15
- JOHN ROYLAND HARVIN to Miss Margaret Bauer Barnwell both of Columbia, S C, June 2
- JAMES W HALFHILL JR Bowling Green, Ky, to Miss Vera Mowry of Lima, Ohio, June 11
- JOHN FOX KENDRICK JR, Boston, to Miss Lou Evans Street of Richmond, Va, April 22
- PARKER HEATH JR, Detroit to Miss Carolyn King of Wellesley Mass, June 3

DEATHS

Hess, George * Medical Director, U S Public Health Service, Reserve Atlanta Ga, born in Beaufort, S C, July 16, 1900 Medical College of Virginia Richmond, 1928 assigned to the U S Industrial Reformatory in Chillicothe Ohio, from 1931 to 1933 when he was transferred to the U S Penitentiary Atlanta then to the U S Penitentiary on Alcatraz Island, San Francisco Harbor (1934 to 1938), chief medical officer from 1938 to 1941 at the federal jail on Terminal Island, San Pedro Calif, in 1941 returned as chief medical officer of the U S Penitentiary Atlanta, commissioned a surgeon in the reserve corps of the U S Public Health Service in September 1942, advanced to medical director member of the Association of Military Surgeons of the United States and the Southern Medical Association, fellow of the American College of Surgeons, died May 12, aged 49, of coronary thrombosis

Schaffle, Karl, Asheville, N C, born in Lewisburg, Pa, May 30 1883, University of Pennsylvania Department of Medicine, Philadelphia, 1907, specialist certified by the American Board of Internal Medicine, member of the American Medical Association, regent of the American College of Chest Physicians, member of the American Trudeau Society, fellow of the American College of Physicians, at one time associated with the U S Public Health Service Reserve, formerly on the faculty of his alma mater and affiliated with the Pennsylvania Department of Health, on the staffs of the Western North Carolina Sanatorium in Black Mountain, Biltmore, Mission and Highland hospitals, served as editor of the *U S Veterans Medical Bulletin* and the *Bulletin of the Buncombe County Medical Society*, died April 8, aged 66, of carcinoma

Brown, Clarence Frank Gunsaulus * Chicago born in Salt Lake City, April 16, 1897 Rush Medical College Chicago, 1924, assistant professor of medicine at Northwestern University Medical School, specialist certified by the American Board of Internal Medicine, member of the Central Society for Clinical Research, fellow of the American College of Physicians, former president and secretary-treasurer of the Chicago Society of Internal Medicine, served during World War I for many years affiliated with St. Luke's Hospital, died June 4, aged 53 of coronary occlusion

Toro, Jorge del * San Juan, P R, born April 4, 1884, University of Maryland School of Medicine, Baltimore, 1906, formerly clinical professor of surgery at the Columbia University College of Physicians and Surgeons, member of the House of Delegates of the American Medical Association in 1919, fellow of the American College of Surgeons, affiliated with Hospital San Jose and University Hospital, consulting surgeon, Presbyterian Hospital in San Juan and the Bayamon District Hospital in Bayamon, died February 19, aged 65, of coronary thrombosis

Anderson, James Burns, Lincoln, Neb Creighton University School of Medicine, Omaha 1910 member of the American Medical Association served during World War II, died April 30, aged 62

Apfel, Sidney Kenneth, Great Neck, N Y, University and Bellevue Hospital Medical College, New York, 1928 formerly practiced in New York where he was on the staffs of the Sydenham and Beth Israel hospitals and the Hospital for Joint Diseases, died April 22, aged 46

Ash, Samuel * Newark N J, University and Bellevue Hospital Medical College New York, 1924 member of the American Academy of Pediatrics, medical inspector for the board of education affiliated with the Newark Beth Israel and Babies hospitals, died April 24 aged 50 of coronary thrombosis

Bauer, Frederick, Brooklyn, Rheinische Friedrich Wilhelms Universität Medizinische Fakultät Bonn Prussia Germany, 1913, member of the American Medical Association died May 6, aged 60, of metastatic carcinoma of the lungs

Baumhauer, Charles Andrew, Mobile, Ala, Tulane University of Louisiana School of Medicine New Orleans 1938 member of the American Medical Association, received the Silver Star for gallantry in action during World War II and the Presidential Unit Citation with Oak Leaf Clusters, died in the U S Marine Hospital April 29, aged 35, of heart disease

Berard, Henry William, Oak Park, Ill, College of Physicians and Surgeons of Chicago 1894, member of the American Medical Association formerly on the staff of the Norwegian American Hospital in Chicago died April 29 aged 83

Bone, Merle * St Louis State University of Iowa College of Medicine Iowa City, 1907 affiliated with Missouri Baptist Hospital, where he died May 9, aged 64 of arteriosclerotic heart disease

Bowman, Hugh Edgar, Aberdeen N C, North Carolina Medical College, Davidson, 1904, member of the American Medical Association died May 7, aged 79

Brandenburg, Nora Florence Brodboll * Winnetka, Ill, University of Illinois College of Medicine, Chicago 1926, specialist certified by the American Board of Otolaryngology member of the American Academy of Ophthalmology and Otolaryngology fellow of the American College of Surgeons, died in Wesley Memorial Hospital Chicago, May 31, aged 49, of carcinoma

Campbell, Claude Melnotte * Manchester Center, Vt., University of Vermont College of Medicine, Burlington, 1898, died April 21, aged 77

Clair, Eli Carl * Mantua N J, McGill University Faculty of Medicine Montreal, Canada, 1939, died in West Jersey Hospital, Camden April 16, aged 45, of cerebral hemorrhage and hypertensive heart disease

Cox, Ernest Fleetwood, Columbus, Ohio, Ohio Medical University 1906, member of the American Medical Association, member of the city welfare staff, died May 8, aged 73, of heart disease

Daniel, Charles Howard * College Park, Ga., Emory University School of Medicine, Atlanta 1926, member of the Southeastern Surgical Congress, died April 17, aged 49

Donnell, Robert Newton, Muskogee, Okla, University of Tennessee Medical Department, Nashville, 1893, served on the staff of Muskogee General Hospital died March 31, aged 81, of carcinoma of the colon

Dunn, Richard Henry * San Francisco, College of Physicians and Surgeons of San Francisco 1906, affiliated with St Mary's Hospital, died March 3, aged 69, of heart disease

Edwards, David Henry, Washington, Pa, Eclectic Medical Institute, Cincinnati, 1903, member of the American Medical Association, served during World War I, on the staff of Washington Hospital, died April 27, aged 70 of cerebral thrombosis

Eshbaugh, Aaron S, Kankakee Ill, the Hahnemann Medical College and Hospital Chicago 1886 member of the American Medical Association died in West Suburban Hospital, Oak Park April 26, aged 90

Evans, Robert L, Boonville Mo Missouri Medical College, St Louis 1891 member of the American Medical Association for many years associated with the Kemper Military School, died in St Joseph's Hospital April 27, aged 84

Finn, James Jay, Findley Lake N Y (licensed in New York year unknown) local health officer for many years died in Helmut April 23, aged 88, of bronchopneumonia and arteriosclerosis

Forsythe, Hugh * Baltimore Baltimore Medical College, 1889 died April 24, aged 84 of arteriosclerosis and cardiac disease

Fulwider, Robert Miller * Hot Springs N Mex Starling-Ohio Medical College Columbus 1912 member of the Colorado State Medical Society and the American Medical Association served during World War I for many years affiliated with various Veterans Administration hospitals died May 5, aged 63

Gillespie, William John, Jackson Miss Medical Department of Tulane University of Louisiana New Orleans 1892 died April 24 aged 81

Glenn, Joseph Marion, Vincennes Ind Kentucky School of Medicine Louisville 1902 also a lawyer, served during World War I, died in Petersburg April 13 aged 79

Gueffroy Herman August * Salem Ore Northwestern University Medical School Chicago 1913 served during World War I affiliated with the Salem Memorial Hospital and Salem General Hospital, where he died April 22, aged 70, of Hodgkin's disease

* Indicates Fellow of the American Medical Association

Hamilton, Simon Milo, Des Moines, Keokuk (Ia) Medical College College of Physicians and Surgeons, 1902, died in Iowa Methodist Hospital May 2, aged 73, of virus pneumonia

Hatz, Bernard ♂ Peekskill, N. Y., Cornell University Medical College New York 1928, specialist certified by the American Board of Radiology, member of the American Trudeau Society and the American College of Radiology, served during World War II, formerly instructor of medicine at his alma mater, affiliated with the Veterans Administration Hospital, died in New York May 1, aged 49, of coronary thrombosis

Heuler, Leo ♂ Fellows, Calif., Jefferson Medical College of Philadelphia, 1913, died April 15, aged 60, of cerebral hemorrhage

Hutchison, Owen Ghormley, Marysville, Kan., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904, member of the American Medical Association, affiliated with Randell Clinic and Hospital, died May 10, aged 70, of coronary occlusion

Johnston, Hardee, Birmingham, Ala., University of Virginia Department of Medicine, Charlottesville, 1895, member of the American Medical Association, veteran of the Spanish-American War, served as secretary of the Jefferson County Medical Society affiliated with Hillman Hospital, died April 17, aged 76, of coronary thrombosis

Kielhorn, Walter Paul, Grandville Mich., Creighton University School of Medicine, Omaha, 1942, served during World War II, affiliated with St Mary's Hospital in Grand Rapids, died in Blodgett Memorial Hospital, Grand Rapids, May 5, aged 33, of injuries received in an airplane crash

Kincaid, John Herbert, Newton, Wis., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, physician for the Chicago and Northwestern Railway for many years, at one time practiced in Chicago, where he was associated with Ravenswood Hospital, died June 1, aged 79, of injuries received in a fire

Kopfstein, Frank Theodore, Cleveland, University of Wooster Medical Department, Cleveland, 1896, died May 7, aged 83, of chronic myocarditis with acute cardiac failure

Leonard, Eugene Thomas, Rockford, Ill., Rush Medical College, Chicago, 1915, member of the American Medical Association, served as examining physician for the local draft boards during World Wars I and II and for these services was cited by the President of the United States, on the staff and chairman of the advisory board for nurses at St Anthony's Hospital, where he died May 4, aged 60, of hemochromatosis

McGeehan, Stanley Martin ♂ Ventnor, N. J., Jefferson Medical College of Philadelphia, 1919, member of the American Urological Association, health officer, affiliated with Shore Memorial Hospital, Somers Point, died May 14, aged 55, of coronary occlusion

Melody, William P., New Baltimore, Mich., Detroit College of Medicine, 1902, formerly practiced in Detroit where for many years he was city physician, died May 11, aged 68, of carcinoma of the rectum

Normand, Jean Napoleon, Fall River, Mass., College of Physicians and Surgeons, Baltimore, 1896, served as president of the board of health, affiliated with Union and St Anne's hospitals, died May 4, aged 79, of heart disease

Quigley, Austin R. ♂ Maysville, Ky., Hospital College of Medicine, Louisville, 1907, past president of the Mason County Medical Society, fellow of the American College of Surgeons, a member and past president of the Mason County Medical Society, affiliated with Hayswood Hospital, where he died April 16, aged 65, of pulmonary edema

Reed, Israel Bebout, Crafton Pa., Jefferson Medical College of Philadelphia, 1886, member of the American Medical Association and charter member of the local board of health, died in the Ohio Valley Hospital, McKees Rock, May 3, aged 86, of uremia

Roche, Mary E., Gaylordsville, Conn., Woman's Medical College of Baltimore, 1908, died in Fairfield State Hospital, Newtown, April 13, aged 78

Schoepfer, Rene Frank, Houston, Texas, Fort Worth School of Medicine, Medical Department of Fort Worth University, 1910 member of the American Medical Association, died in Memorial Hospital April 29, aged 68, of aplastic anemia and lymphoma

Slack, Clarence Johnson, Trenton, N. J., Medical-Chirurgical College of Philadelphia, 1905, member of the American Medical Association, veteran of World War I, affiliated with Mercer Hospital, where he died April 25, aged 68, of uremia

Smeltzer, Charles Everett, St Clair Shores Mich., Rush Medical College Chicago 1914 veteran of the Spanish American and World War I, died May 6 aged 68 of cerebral hemorrhage

Smith, Grace Gardiner, Red Wing Minn., Boston University School of Medicine 1895 for many years member and president of the board of education, died May 24 aged 77 of coronary occlusion

Smith, Henry Albert, Beesley's Point N. J., Medical-Chirurgical College of Philadelphia 1898, served in France during World War I, formerly chief medical officer at the Veterans Administration at Fort McHenry Baltimore, died in U. S. Naval Hospital, Philadelphia, May 14, aged 71 of cerebral hemorrhage

Spurney, Anton Benjamin, Cleveland University of Wooster Medical Department Cleveland 1902 fellow of the American College of Surgeons, served during World War I, affiliated with Polyclinic Hospital, died in the Cleveland Clinic Hospital May 2, aged 70

Steward, Cleveland Rex ♂ Colonel, M. C., U. S. Army Mineral Wells, Texas, Baylor University College of Medicine, Dallas, 1928, entered the medical corps of the U. S. Army in 1930, died in Germany March 24, aged 46, of coronary occlusion

Sweetser, Horatio B., Minneapolis, College of Physicians and Surgeons, medical department of Columbia College New York, 1885, member of the American Medical Association and the Western Surgical Association, fellow of the American College of Surgeons, on the staff of St Mary's Hospital, where he died May 23, aged 88, of arteriosclerosis

Taurchin, Mario Francis, Brooklyn, New York Medical College, Flower and Fifth Avenue Hospitals, New York, 1943, affiliated with St John's Hospital, certified by the National Board of Medical Examiners, member of the American Medical Association, died April 17, aged 35

Tibe, Matilda Luke, St. Louis, St. Louis College of Physicians and Surgeons, 1909, member of the American Medical Association, died May 14, aged 70

Wagner, Charles, Hanover, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1892, died in Hanover General Hospital May 10, aged 82

Walker, Orville Jackson ♂ Youngstown, Ohio, University of Pittsburgh School of Medicine, 1915, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology, past president of the Mahoning County Medical Society, affiliated with Youngstown Hospital, died in the Northside unit of Youngstown Hospital April 27, aged 61, of myocardial infarction

Waterbury, Charles Arthur ♂ Waterloo, Iowa, the Hahnemann Medical College and Hospital, Chicago, 1899, affiliated with Presbyterian Hospital and Allen Memorial Hospital, where he died April 29 aged 75, of primary hepatoma

Waters, Zura Orthello, San Francisco, College of Physicians and Surgeons, medical department of the University of Southern California, Los Angeles 1918, member of the American Medical Association, affiliated with St Joseph's Hospital, died March 10, aged 59, of right hemiplegia

Watkin, Clifford Ray ♂ Sioux City, Iowa, Rush Medical College, Chicago, 1914, died April 15, aged 60, of lymphosarcoma

Watkins, James Harold ♂ Montgomery, Ala., Tulane University of Louisiana School of Medicine, New Orleans 1927, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, served overseas during World War II, affiliated with St Margaret's and Hubbard hospitals, died in Phenix City May 1, aged 46 of injuries received in an automobile accident

Whitsitt, Wilson Henry, Flossmoor, Ill., Rush Medical College, Chicago, 1901, past president of the Iroquois County Medical Society, formerly practiced in Danforth where he was president of the school board and Farmers State Bank, died May 30, aged 77

Wood, Wilbur C. ♂ Decatur, Ill., Northwestern University Medical School Chicago, 1895, also a graduate in pharmacy, an Associate Fellow of the American Medical Association, fellow of the American College of Surgeons, on the consulting staff of Wabash Employees' Hospital, affiliated with Decatur and Macon County Hospital and St Mary's Hospital, where he died May 6, aged 84

Wunschow, Otto Buford ♂ St Petersburg Fla., University of the South Medical Department Sewanee, Tenn., 1892, served during World War I, affiliated with the Veterans Administration, died May 7, aged 69

FOREIGN LETTERS

PARIS

(From a Regular Correspondent)

April 1, 1950

Conference on Gonorrhea

This conference was held at the Paris Fournier Institute in November 1949. The previous conference was held in 1939. Professor Gougerot of Paris, in his opening speech, said that the conference was made necessary by the discovery of penicillin, in order that a new comparison of the various technics be made. J. R. Debray, Paris, remarked that, notwithstanding the efficacy of penicillin in the treatment of gonorrhea in the male, the number of outpatients of the department of urology of St. Louis Hospital has remained about the same for four years. Indications are that men become reinfected and that gonorrhea occurs more frequently in women than is generally admitted. Specialists have noted fewer complications since penicillin therapy was introduced. H. Thiers (Lyons) reported on sacroiliac arthritis as a secondary infectious cause and a possible primary cause of visceral complications. In 4 cases Dreyfus found gonococci remaining in the neck of the uterus after hysterectomy for adnexitis. Rectitis remains an extremely rare complication, except perhaps in North Africa.

Diagnosis is important, especially for women, who often are carriers of organisms detectable by direct examination. It is in these cases that a culture is extremely useful. Le Minor (Paris Pasteur Institute) has modified Peizer and Steffen's culture medium by adding penicillinase and paraaminobenzoic acid permitting positive cultures in patients recently treated with penicillin or sulfonamides. The gelose concentration is 1.8 per cent instead of 1.5 per cent. Nile blue is no longer in use, since it tends to prevent the growth of gonococci and also because the oxidase test gives better results. S. Debray and Le Minor have found gonococci through culture (3,000 cases) in 40 per cent of women examined because of suspected infection of a partner or a similar reason and in 60 per cent of women deemed contagious. Prior to the use of cultures, three direct examinations gave a rate of 35 per cent for the latter and of 20 per cent for all patients. In 100 cases 68 cultures of material from the neck of the uterus and the urethra were positive, 22 of material from the neck only and 10 of material from the urethra only were positive. Professor Gate and Bondet, Lyons, found that 30 to 75 per cent of their female patients were carriers of gonococci. P. Durel and his associates found, with cultures, an increase of 20 per cent over the number of cases discovered by direct examination. As regards the value of cultures, Le Minor thinks that errors occur in 1 in 1,000 cases. Gram-negative diplococci (originating from genital secretions) showing an oxidase reaction are almost always gonococci. Together with Thompson, this author stresses the need for use of Gram's stain on oxidase-positive colonies and the need to study the sucrose fermentations in the rare doubtful cases. The larger number of positive cultures in women has raised the question of the pathogenicity of the gonococcus as regards the partner. According to Debray a small number of gonococci the vital capacity of which has been lessened by previous penicillin therapy would perhaps represent a lesser danger than numerous gonococci in an untreated woman. The specific value of the gono reaction was discussed. Professor Gate and Bondet, Lyons, use this test routinely. They are of the opinion that it must be systematically used in female patients who are clinically doubtful, epidemiologically suspect and bacteriologically nega-

tive. If the reaction is positive it is of absolute value. Debray and Le Minor found it negative eight times in women with negative cultures and positive 60 times in 64 women with positive cultures. Of the 4 negative reactions, 3 were in women with a positive culture only at the urethra, which to the authors indicated that the surface of absorption of the antigen was not sufficient to permit formation of antibodies. These results can compare with those in the 31 men with urethritis, in whom only 17 gono reactions were positive. At present the Pasteur Institute prepares an antigen of a superior quality which, with Kolmer's technic according to Le Minor, increases the value of this test. Gate intends to study the value of this new antigen for intradermal testing.

TREATMENT

Penicillin therapy is, at present, essential in the treatment of gonorrhea. There are some differences of opinion as regards dosage. Most of the specialists note good results with doses of 200,000 to 4,000,000 units. Rousset and Cuilleret, Lyons, inject 200,000 units in anterior urethritis and 400,000 in total urethritis. Palozzi and Delaville (Paris Prophylactic Institute) have obtained the best results in 2,600 cases (8 per cent failure) with two injections of 100,000 units of penicillin G and local treatment consisting of one daily injection of 2 per cent strong protein silver for four days, with the exception of 1 per cent of the cases, which necessitated mechanical local treatment, relapses were successfully treated with the same dosage. At present, Barbeillon and Siboulet (Cochin Hospital, Paris) use two doses of 100,000 units of penicillin G in an aqueous solution with an interval of three hours. They have obtained 95 per cent recoveries in 1,500 cases. They noted that 400,000 units of ordinary penicillin gave a greater percentage of failure than 200,000 units of penicillin G. They use sulfonamides against the banal organisms, after disappearance of the gonococci. Professor Darget and Ballenger (Bordeaux), after having obtained recoveries at first with 200,000 and 300,000 units injected in one or two doses, note that it is now necessary to increase the dose to 500,000 units per day for three or four days, washings with potassium permanganate are given simultaneously. More often than not "delaying" solutions are used, with a dose of about 300,000 units 90 per cent success is obtained. Durel (St. Lazare Hospital, Paris), Payenville, Daguet, Girard and Jaubert consider Romansky's formula inferior to other prolonging methods.

Penicillin resistance is not yet well established. Hadida (professor, Algiers faculty) has noted that a single dose of 200,000 to 300,000 units of penicillin in a prolonging solution gives less satisfactory results than those obtained (in 1947) with 200,000 units in divided doses. Pellerat and Vayre, Lyons, studied the sensitivity of gonococci to penicillin in 56 cases. In 5 cases it was 0.01 to 0.02 unit per cubic centimeter of culture (200,000,000 gonococci), in 12 cases 0.05 to 0.10 unit in 23 cases 0.02 to 0.05 unit and in 16 cases 0.10 to 0.20 unit. The average was less than 0.10 unit per cubic centimeter. They noted a sensitivity of 0.10 to 0.20 unit per cubic centimeter in a couple that had already had several treatments and a sensitivity of 0.15 to 0.20 unit per cubic centimeter in another group. In 7 patients apparently cured urethritis developed within a short time.

In gonorrhea in male patients Pellerat and Vayre administered single doses of 600,000 units in tablet form with 90 per

cent recovery in inpatients and 88 per cent in outpatients. They believe that the failures may have been avoided by administration of a double dose. Durel, Payenville, Gate and Bondet have achieved good results with oral administration of penicillin.

In female patients the dose generally used is large. Twenty-three out of 26 specialists consider 600,000 units of penicillin in a prolonging vehicle, given in two injections, as sufficient. Griveaux notes 40 per cent failure in spite of the use of doses up to 1,200,000 units. Debray believes that amounts over 1,000,000 units are ineffective. Local treatment is more important in women than in men. Durel and his associates suggest dilatation and the use of tents in obstinate urethritis. Palmer and Debray reported good results with injections of penicillin under the mucosa in obstinate cervicitis. Blum and Collart, however, (St. Lazare Hospital, Paris) prefer 400,000 units along with 5 to 10 cc of blood or 200,000 units with blood in the morning and 200,000 units in a prolonging vehicle at night. Perin and his associates often use negatol® (a colloidal product of polymerized disulfonic-dioxy-dimethyldiphenylmethane acids). In order not to overlook a concomitant syphilitic infection, they take a temperature reading every third hour after the injection of penicillin. The temperature does not rise above 38 C (100.4 F) when only a gonococcal infection is present, a sharp rise to 39 C (102.2 F) is almost always the sign of primary or secondary syphilis.

Numerous doctors use sulfonamides to reinforce the action of penicillin. Vaccines are used especially when "adnexitis" is present. In prostatitis Thiers uses estrogens. In chronic prostatitis Dargent and Ballenger inject by perineal route 30,000 to 50,000 units of penicillin in each lobe, three to four times at intervals of one to two days. In obstinate prostatitis they use the rectal route for the administration of penicillin *in situ*. They use penicillin washings in obstinate vesiculitis.

Streptomycin is little used. Durel and his associates have obtained a good percentage of recoveries with 0.50 to 1 Gm in one injection. In several cases resistant to the usual doses of penicillin, cure has been thus obtained. Siboulet reports 40 recoveries out of 42 patients treated with the same dose. In prostatitis Thiers gives a daily injection of 1 Gm for three days.

To verify cure Griveaux and Broussegoutte (Clermont-Ferrand) use an intramuscular injection of ergotamine tartrate. Roederer and Burgun (Strasbourg) give three injections of diluted gonococcus vaccine (Pasteur's). Gate and Bondet determine cure in women by culturing material from the urethra (1:100) and the neck (2:100) at intervals of four days. Examination at the end of the menstrual period, and also at the beginning according to Fernet for two to four consecutive months is important. Numerous authors use the culture after reactivation with beer or silver nitrate.

Bonet and Wartrin, Nancy, suggest that penicillin therapy, while hastening recovery, may provoke stenosis which may explain the presence of persistent urethritis after direct examination shows no further gonococci.

Harkness (London) mentioned the relative frequency of urethritis and cervicitis caused by the virus of conjunctivitis, found in bathing pools, or by "pleuropneumonia-like organisms." The condition may occur alone or associated with a gonococcal infection. Harkness treats patients with washings (twice daily) of a warm potassium permanganate solution. If soft infiltration is present, dilatation may be performed. Streptomycin and aureomycin are also used with some success.

The Congress passed a resolution that "sanitary antivenereal education be further developed, that the liaison with armies, mercantile marines and international authorities be regularly instructed and adapted to present necessities."

ITALY

(From a Regular Correspondent)

FLORENCE May 7 1944

Narcoanalysis

At the International Congress of Catholic Physicians Professor Palmieri of the University of Naples discussed the medicolegal and socioethical aspects of narcoanalysis. It is well known, said the speaker, that ether and chloroform frequently induce in surgical patients either at the start of the anesthesia or shortly after awakening a condition characterized by logorrhea, mental alertness and abstraction, verbalization of emotional experience. Narcoanalysis, the use of drugs in order to elicit such reactions, may be considered a form of psychoanalysis. The first attempts to induce a narcotic state to partially free some types of patients from inhibition were made by Silberer and Boris Sidis in 1909. The development of present day techniques may be largely credited to the British investigators who introduced oral and parenteral administration of hypnotic substances. The best results were obtained with barbiturates, especially hexobarbital, amobarbital, sodium and thiopental sodium. The speaker described the technique. The patient is recumbent, in semidarkness and quietness, and is slowly given the selected drug and told to count aloud. When he stops, errs or shows in any way that he is about to fall asleep, the administration of the drug is stopped and questioning begun, first on indifferent subjects. Generally there are no side effects, the only contraindications being hepatic insufficiency and renal disease.

Narcoanalysis has been used for diagnostic, therapeutic and investigative purposes. Two additional procedures, narcohypnosis and narcosuggestion, have been developed. Narcohypnosis consists in the attempt to reconstruct the personality of the narcoanalyzed neurotic patient. Narcosuggestion tends to convince the patient of the nonexistence or inconsistency of his ailment. Narcoanalysis has been combined with electroshock to reduce convulsive action and subsequent pain.

Medicolegal application may have the following objectives: (1) to investigate mental states, (2) to unmask simulation, (3) to differentiate an organic neurologic syndrome from a functional one or (4) to obtain information on facts of interest to the courts. Two important questions were posed: 1. Is narcoanalysis a technically useful procedure? 2. Is it a legal procedure? The speaker examined the technical usefulness of such procedures with respect to diagnosis of mental disturbances, diagnosis of neurologic disturbances and obtaining a confession.

With respect to psychiatric diagnosis good results have been obtained almost exclusively in neurosis. Narcoanalysis has shown promise in the detection of pseudocontusion or pseudo-amentia. Its use in judicial investigation has disclosed four types of subjects: 1. Persons in whom narcosis produces a striking effect. The patient speaks spontaneously, remembers the past, answers questions and himself identifies the cause and the mechanism of his disturbance. These are comparatively rare, limited to about 12 per cent. 2. Persons who are undoubtedly under the influence of narcosis but need to be questioned who control responses and withhold information. They constitute about 30 per cent of the cases. 3. Persons in whom narcosis is powerless against the will not to speak. The majority of persons belong to this category. 4. Persons who are not affected by the narcotic, who constitute a small percentage.

The speaker pointed out that the illegality of narcoanalysis could derive from (1) the hazard associated with the investigation and (2) the fact that it is not in accord with positive law. With regard to the first the fears of some investigators could be considered exaggerated. In clinical practice the consent of

the person eliminates all doubts concerning the legality of narcoanalysis with a diagnostic or therapeutic aim. Dr Palmieri believes that the technic should not be used without the patient's consent, because the patient may consider keeping certain facts secret more important than the possibility of his regaining health.

Opinion on the legality of narcoanalysis is somewhat divided. Prevailing opinion permits the expert to use it to establish a psychiatric or neurologic diagnosis but not to provide information for the courts or obtain confessions of guilt. Some jurists are occasionally in favor of its use in judicial investigations, particularly when a person is suspected of deception. But, according to the speaker, this trend of reasoning does not take into account the right of a human being to refrain from incriminating himself. From a juridical and technical point of view, the speaker rejects the use of narcoanalysis for medicolegal verification or judicial experiment. These uses are substantially interrogatory and as such are in the province of the magistrate, not the health expert. According to Professor Palmieri the magistrate is also restricted because the law states that the interrogated person must be able to think and to act independently and above all to defend himself. Also the information obtained by narcoanalysis will not have legal validity and a person convicted on the basis of information thus obtained may have the decision revoked because the information was extorted while he was not wholly conscious.

DENMARK

(From a Regular Correspondent)

COPENHAGEN May 24, 1950

Cost of Neuroses in Denmark

Hitherto rheumatism and tuberculosis have been the only diseases for which the total annual cost to Denmark has been calculated. For rheumatism for the year 1947 the figure is 39 million kroner, this covers hospital treatment, pensions and loss of earnings for 12,000 rheumatic patients. For tuberculosis the corresponding figure is approximately 20 million kroner. Dr H. I. Schou has undertaken the task of calculating the cost of the neuroses (including neurasthenia, asthenia and hysteria) to Denmark. He has had the support of several colleagues and of the public health authorities including the head of the office for medical statistics.

The difficulty of this investigation is evident from the outset. When the head of a neurologic or psychiatric hospital department uses such terms as psychopathia, psychosis, psychogenetica and depressio mentis, he does not refer to a neurosis. But the heads of medical, surgical and mixed hospitals are apt to be indiscriminate in labeling neuroses. In hospital case records there is much confusion in the classification of ailments according to whether they are primary or subsidiary. For example, in a medical department a patient's primary disease may be heart disease and a neurosis a subsidiary disease, whereas in a neurologic department or a sanatorium for nervous patients this arrangement will be reversed with emphasis on the neurosis.

In spite of these and various other difficulties Schou has calculated that in 1946 there were some 8,000 patients admitted to Danish hospitals and state asylums with neurosis as the main diagnosis. They spent an average of 20 days each in hospital, a total of 160,000. This total is brought up to about 192,000 hospital days by the addition of a certain proportion of the patients in whose records neuroses figured as subsidiary diseases. Schou calculates that the cost of such hospital treatment and of pensions was over 5 million kroner and the loss of earnings between 10 and 11 million kroner. This gives a total of over 16 million kroner in 1946.

At a casual glance it may seem that the 12,000 rheumatic patients cost Denmark more than the 8,000 patients suffering

from neuroses, but Schou is not at all sure that his figures do full justice to the claims of neurotic patients. For them the average duration of hospital treatment is 20 days as compared with the 35 days devoted to the treatment of each rheumatic patient. While he is considered seriously the patient with neurosis often runs the risk of premature discharge from hospital because his doctor is likely on finding no organic disease to speed the parting guest from hospital.

BCG Vaccination on the Island of Bornholm

Because of its geographic position and unified medical administration, the island of Bornholm has provided an instructive test of BCG vaccination, which was started there in 1936. At first this treatment was confined to the contacts of known cases of tuberculosis. Later it was extended to other selected groups such as children about to leave the island, recruits and domestic servants. During the first five year period 1936-1940, only 2,394 persons were treated. By the end of the next five year period 1941-1945, BCG vaccination had been carried out so thoroughly in all the schools and other institutions of the island that a total of 10,337 persons had been treated. This number represented 23 per cent of the population of the island.

Dr H. C. Olsen who has been in charge of this activity in the island has given an illuminating account of it in the organ of the Danish Medical Association, *Ugeskrift for Læger*, for May 11, 1950. In the first of the two five-year periods reviewed there were 134 new notifications of tuberculosis in the island. In the second period this number was reduced to 82. Dr Olsen reproduces two diagrams showing the age distribution of patients in the two periods. These diagrams show a remarkable shift and flattening curve in the age distribution of new cases of tuberculosis. Another statistical analysis shows results in tuberculin-positive and tuberculin-negative persons and the incidence of tuberculosis among the vaccinated persons and those not vaccinated. The outcome in tuberculin-negative persons who were not vaccinated with BCG was poor. Persons who were tuberculin positive from the outset and who therefore were not vaccinated fared somewhat better, whereas BCG vaccinated persons showed a much lower tuberculosis rate than either of the two preceding groups.

Declining Death Rate from Puerperal Fever

Puerperal fever is still occasionally fatal in Denmark, and there is still room for improvement in the measures taken to prevent it. Caution is the keynote of a recent study from Maternity Department B of the Rigshospital in Copenhagen by Dr Per Schou, who outlines the possible means for even better results. In his hospital there was an average of 3 deaths due to puerperal fever every year in the period 1932-1936. In the period 1937-1942 this annual mortality was reduced to 1.4 and in the period 1943-1947 there was not a single death from this cause in the hospital, in which the average number of confinements was 1,880 each year in the period under review. For the whole of Denmark in the period 1931-1940 the mortality from puerperal fever was 0.82 per thousand births. In 1940 this figure was 0.49, in 1946 it was 0.12 and in 1948 it was 0.05 per thousand births. The fall in the mortality in the past 18 years was much greater than the fall in the morbidity.

These encouraging figures must be attributed to many different factors including treatment with the sulfonamides and penicillin. The Danish law of Oct. 1, 1945 concerning the systematic control of pregnant women by doctors and midwives has also assuredly done much to reduce the mortality from puerperal fever and various other causes of death in childbirth. In Denmark in 1941 puerperal fever was still responsible for as great a proportion as 26 per cent of the deaths in childbirth. In 1946 this figure was reduced to 11 per cent.

Dr Schou has undertaken a searching analysis of the 31 puerperal fever deaths in Denmark in 1945 and 1946. In 28 of these cases detailed information was obtained concerning the most important events leading to death. It is a tragic record of missed opportunities. In 15 cases infection had occurred before hospital admission, and craniotomy had been necessary in 7 out of the 11 cases requiring forceps. Treatment with sulfonamides and penicillin had often been inadequate, and less than half the total number of patients had received penicillin. In several cases it had been given late in the disease. Dosage had varied greatly and had as a rule been too small. No streptomycin was given.

ISRAEL

(From a Regular Correspondent)

JERUSALEM, June 1, 1950

Twenty-Fifth Anniversary of the Hebrew University

Scholars and government representatives of many nations joined Israel's academic leaders in Jerusalem on May 5, 1950 in celebrating the Hebrew university's twenty-fifth anniversary. Sir Leon Simon, chairman of the Board of Governors, who presided at the ceremony, traced the growth of the university, which now has 1,500 students, an academic staff of more than 200 and four faculties. Sir Leon then introduced Prof Selig Brodetsky, who was formally installed as president of the university.

A message was read from the president of Israel, Dr Weizmann, who recalled the year 1918, when he laid the foundation stones of the buildings on Mount Scopus. "In that year," he said, "we also laid the foundation for a house that is yet unbuilt. Jewish-Arab friendship. But, sooner than the enemies of peace think, the day may come when the two nations will, to their mutual benefit, contribute to the establishment of a belt of flourishing countries, stretching from the Mediterranean to the Indian Ocean, where the people of Israel and the people of the Arab countries may cooperate in peace and harmony. Then this university of ours will join hands with its sister institutions in our neighbors' countries, teaching the youth of this historic region the secrets of nature and the precepts of mankind."

The prime minister, Mr D. Ben Gurion, in his address referred to the Jewish genius that from the days of the prophets until Einstein had refused to accept the duality of matter and spirit propounded by many of the world's great philosophers. Pointing out that the Jews had always stood for the unity of existence and life, he said that, because of this, the Jewish people saw in the revival of its homeland, the physical and political basis of its existence not only the national necessity for a healthy and normal existence but the preliminary condition for the realization of its messianic mission. Israel's rebirth, he declared, would find its supreme and most complete fulfillment by revealing its eternal spirit and by fulfilling its historic mission in the redemption of humanity. The university, he said, must be first of all an institution for research, science and universal education. It will embrace the whole world—all the sciences without exception—and nothing human will be strange to it.

Finally, in words that reasserted the freedom of the human spirit, the prime minister declared. The university will be an institute of higher education for the studious youth of the nation, both from this country and from abroad, will fashion the superstructure of adult education and will be an institution for higher scientific research in all branches of human thought, existing in complete freedom and without being subservient to a ruler, a leader or a fixed pattern, led only by a desire to search for pure truth. The university will carry on its scientific work and will serve through its teaching and research as a symbol and living expression of the freedom of man and human dignity.

The following message was received from Prof Albert Einstein on the occasion of the university celebration. "I am very happy to congratulate the Hebrew University on the attainment of its twenty-fifth anniversary. During this period much has been achieved, thanks to the devotion of the academic staff in spite of difficulties both internal and external of a lack of funds and two wars.

"I can well envisage the university's becoming increasingly important, not only for the new state of Israel but also for the Jews throughout the world. If it is indeed to become so then its spirit must keep pace with the greatness of the task. In other words, our highest ideal must be the acquisition and diffusion of knowledge. Only then can we create those permanent conditions in which practical achievements can also flourish and bring benefits to the country. A narrow, utilitarian spirit is as dangerous as is one which places undue emphasis on nationalism or on the purely formalistic observance of religious doctrines. We must also beware of the provincialism which so often accompanies baseless self glorification.

"I hope that the university will soon be able to resume its work undisturbed in its beautiful home and that it will become a factor in Israel in strengthening the spirit of mutual understanding among men, which comes with selfless striving after truth."

New Trends in the Inhalation Therapy for Bronchial Asthma

The frequent failure of epinephrine inhalation in acute attacks of bronchial asthma was the cause of clinical observations by Dr Zerykier (Tel-Aviv) during the last few years. The originally applied epinephrine concentration of 1:1,000 was replaced by a 1:10 concentration. The therapeutic results of the higher epinephrine concentrations were no doubt much better, but not uniformly so, so that the higher concentrations alone cannot be decisive in the clinical success. Attempts to discover why some of the asthma patients did not react favorably led to a study of the breakdown of epinephrine in the body. Particular attention was given to the ferment amino-oxidase, which plays an essential role in this connection. It is assumed that asthmatic persons show an increase in amino-oxidase. It can thus be that the epinephrine is broken up so quickly as to inhibit its usual clinical effect. The attempt to neutralize the effect of amino-oxidase resulted in the combination of several biologically effective substances with epinephrine in an inhalant. The esters of the paraoxybenzoic acid have proved most suitable for this purpose, possessing at the same time fungicidal qualities. Various esters of paraoxybenzoic acid, together with a stabilized 8 per cent epinephrine solution, were worked up together in an inhalant and were tested clinically. The results in 280 asthma patients can be considered favorable in Zerykier's opinion, in as much as only patients with illness of many years' duration were treated. An inhalation apparatus was used to produce air in an oscillating procedure without rotating motors and oil compression and to spray the inhalant in molecules of 0.5 to 1.5 microns.

CORRECTION

Disease of Swineherds in Israel—Dr Raphael Sand'ker of Tel Aviv, Israel, has written to point out the following errors in the foreign letter in THE JOURNAL February 18, page 502, concerning the disease of swineherds in Israel. He writes that (1) agglutination in pigs against leptospirosis pomona was found positive in 12 per cent with a dilution of 1:200 and in 6 per cent with a dilution of 1:2,000, not "1:200." (2) The serums of 2 patients examined a few months after the illness were positive for Leptospira pomona at a dilution of 1:100+ (not 1:00) and the others at 1:200. (3) The last sentence of the first paragraph in this item in THE JOURNAL should read "The patients had negative reactions during and after the illness to Leptospira icterohemorrhagiae, Leptospira gripposynphosa (Leptospira bovis) and Leptospira canicola."

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written* Various locations July 21 *Oral* Chicago Oct. 8-11 Sec. Dr. Curtiss B. Hickox 745 Fifth Ave. New York 22

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written* Various locations Sept. 14 *Oral* Detroit Oct. 20-22 Sec. Dr. George M. Lewis 66 East 66th St. New York 21

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct. 16 Asst. Sec. Dr. William A. Werrell 1 West Main Street Madison 3 Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY Chicago Oct. 1950 Applications no longer accepted Sec. Dr. W. J. German 789 Howard Ave., New Haven Conn.

AMERICAN BOARD OF OPHTHALMOLOGY *Written* Various Centers Jan. 5-6 1951 San Francisco March 11-15 New York May 31 June 4 Sec. Dr. Edwin B. Dunphy 56 Ivy Road Cape Cottage Maine

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Part II* Chicago Jan. 25-26 Final date for filing applications is Aug. 15 1950 Sec. Dr. Harold A. Soheld 122 South Michigan Avenue Chicago 3

AMERICAN BOARD OF OTOLARYNGOLOGY Chicago October Sec. Dr. Dean M. Lierle University Hospital Iowa City

AMERICAN BOARD OF PATHOLOGY St. Louis Oct. 13-14 Sec. Dr. Robert R. Moore 507 Euclid Ave. St. Louis 10

AMERICAN BOARD OF PEDIATRICS *Oral* Chicago Oct. 13-15 and Boston Dec. 13 Exec. Sec. Dr. John McK. Mitchell 6 Cushman Road Rosemont Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION *Oral and Written* Boston Aug. 26-27 Final date for filing applications is April 1 Sec. Dr. Robert L. Bennett 30 N. Michigan Ave. Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY Next examination December 1950 Final date for filing applications is Sept. 1

AMERICAN BOARD OF SURGERY *Written* Various centers Oct. 25 Final date for filing applications is July 1 Sec. Dr. J. Stewart Rodman 225 South 15th Street Philadelphia

AMERICAN BOARD OF UROLOGY Chicago Feb. 10-14 1951 Final date for filing applications is Sept. 1 1950 Sec. Dr. Harry Culver 7935 Sunnyside Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

ALASKA * Juneau, Sept. 5 Special examinations given on application. Sec. Dr. W. M. Whitehead Box 140 Juneau

ARIZONA * Phoenix July 22 Sec. Dr. J. H. Patterson 316 W. McDowell Road Phoenix.

CALIFORNIA Examination *Written* Los Angeles Aug. 21-24 Sacramento Oct. 16-19 Examination *Oral and Clinical* for Foreign Medical School Graduates Los Angeles Aug. 20 San Francisco Nov. 12 Reciprocity *Oral Examination* Los Angeles Aug. 19 San Francisco Nov. 11 Sec. Dr. Frederick N. Scatena 1020 N. Street Sacramento 14

CONNECTICUT Examination Hartford July 11-12 Sec. to the Board Dr. Creighton Barker, 160 St. Roman St. New Haven *Homoeopathic* Derby July 11-12 Sec. Dr. Donald A. Davis 38 Elizabeth St. Derby

DELAWARE Examination Dover July 11-13 Reciprocity Dover July 20 Sec. Dr. J. S. McDaniel 229 S. State St. Dover

HAWAII Examination Honolulu July 10-13 Sec. Dr. I. L. Tilden, 1020 Kapiolani St. Honolulu.

IDAHOO Boise July 10 Sec. Mr. Armand L. Bird 305 Sun Bldg. Boise

MAINE Examination and Reciprocity Augusta July 11-12 Sec. Dr. Adam P. Leighton 192 State St. Portland.

MASSACHUSETTS Examination Boston July 11-14 Sec. Dr. George L. Schadt Room 37 State House Boston 33

NEVADA Endorsement Carson City August 7 Sec. Dr. George H. Ross 112 Curry Street Carson City

NEW HAMPSHIRE Concord Sept. 13 Sec. Dr. John Samuel Wheeler 107 State House Concord

NEW MEXICO * Santa Fe Oct. 9-10 Sec. Dr. Charles J. McGoe 107 State House Santa Fe

NORTH DAKOTA Examination Grand Forks July 5-7 Reciprocity Grand Forks July 8 Sec. Dr. C. J. Glaspel Grafton

OREGON * Examination Portland July 6-8 Endorsement Portland July 28-29 Sec. Mr. Howard I. Bobbitt 609 Failing Building Portland

PENNSYLVANIA Examination Philadelphia and Pittsburgh July 11-14 Act. Sec. Mrs. Marguerite G. Steiner 351 Education Bldg. Harrisburg.

Puerto Rico Examination Santurce Sept. 5 Sec. Mr. Luis Cueto Coll Box 3-17 Santurce

RHODE ISLAND * Examination Providence July 6-7 Sec. Mr. Thomas B. Casey 366 State Office Building Providence

SOUTH DAKOTA Sioux Falls July 18-19 Sec. Dr. C. E. Sherwood 300 First National Bank Bldg. Sioux Falls.

WASHINGTON * Seattle July 17-19 Director Department of Licenses Mr. Edward C. Dohm Olympia

WEST VIRGINIA Examination Charleston July 10-12 Sec. Dr. N. H. Dyer Capitol Bldg. Charleston

WISCONSIN * Milwaukee July 11-13 Sec. Dr. C. A. Dawson River Falls

Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA Examination Juneau last week in August Sec. Dr. C. Earl Albrecht Box 1931 Juneau.

COLORADO Examination Denver Sept. 13-14 Sec. Dr. E. H. B. Starks 1459 Ogden St. Denver 3

FLORIDA Jacksonville Nov. 11 Sec. Mr. M. W. Emmel University of Florida Gainesville

IOWA Examination Des Moines July 11 Sec. Dr. Ben H. Peterson Coe College Cedar Rapids

MICHIGAN Examination Ann Arbor Oct. 13-14 Sec. Miss Eloise LeBeau 101 North Walnut Street Lansing 15

NEBRASKA Examination Omaha Oct. 3-4 Director Mr. Oscar F. Humble Room 1009 State Capitol Building Lincoln 9

NEW MEXICO Examination Santa Fe Sept. 17 Sec. Mrs. Marguerite K. Cantrell Box 1522 Santa Fe

OKLAHOMA Examination Oklahoma City Sept. 15 Sec. Dr. Clinton Gallaher 813 Braniff Building Oklahoma City

RHODE ISLAND Examination Providence August 9 Chief Division of Professional Regulation Mr. Thomas B. Casey 366 State Office Building Providence

TENNESSEE Examination Memphis July 7-8 Sec. Dr. O. W. Hyman 874 Union Ave. Memphis 3

TEXAS Examination Austin October Sec. Brother Raphael Wilson 306 Nalle Building Austin

WASHINGTON Examination Seattle July 12-13 Director Department of Licenses Mr. Edward C. Dohm Olympia

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice Joint Liability of Family Doctor and Specialist—The plaintiff sued for damages alleged to have been caused by the joint negligence of the defendant physicians. From a judgment in favor of the plaintiff the defendants appealed to the Supreme Court of Wisconsin.

The plaintiff injured her arm in a fall and called her family physician Dr. Komasmiski, who took her to the hospital for roentgenograms. Anteroposterior and lateral views were taken by the hospital technician at his direction and the next day the defendant and the hospital roentgenologist examined the roentgenograms together. The pictures disclosed a fracture of the greater tuberosity, an outer piece of the humerus to which muscles from the back and shoulder are attached. Two days later further roentgenograms were taken by the roentgenologist, which were also examined by him and Dr. Komasmiski. Then with the consent of the plaintiff the defendant Dr. Bump was called into the case because of his greater experience and specialization in surgery. The three doctors examined the roentgenograms together and concluded that the arm should be placed at right angles to the body with the forearm pointing straight upward in a position described by the witnesses as 90 degree abduction and 180 degree external rotation. Dr. Bump assisted by the roentgenologist and with Dr. Komasmiski looking on placed the patient's arm in this position and applied a plaster of paris cast. The plaintiff was then sent home where Dr. Komasmiski visited her at regular intervals. In due course the cast was removed but the plaintiff continued to have pain and complained of inability to bring her arm down at her side. She consulted an osteopath who took roentgenograms of her shoulder one of which showed a hair line fracture of the shaft of the humerus just below the shoulder joint. There was a displacement of the lower fragment of the humerus of about 3/8 inch (1 cm) and from this fragment a calcium deposit of

J. A. M. A.
July 9, 1950

about $\frac{1}{2}$ inch (1.3 cm) had accumulated extending toward the glenoid. The osteopath advised the plaintiff to see Dr. Burns at the Wisconsin General Hospital, which she did. Dr. Burns examined her and advised that he could administer a general anesthetic and, by manipulating the arm, determine whether the spicule of bone near the joint was causing a block which prevented the arm from coming into normal position, that if it did, he could operate immediately and remove the spicule. The plaintiff returned to her home, however, and was sent to Detroit to see Dr. Wood, an osteopathic surgeon. Later the plaintiff was also asked by the defendant Komasmiski to submit to an examination by Dr. Schumm, an orthopedic surgeon at Milwaukee.

The defendants first contended that Drs. Wood and Madson, osteopaths, were not permitted to testify against the defendant allopath. Since the state license allopaths and osteopaths to perform surgery, said the Supreme Court, it must be regarded as a common field concerning which both may testify. The rule that a licensee of one school of medicine cannot testify as to conduct of a person licensed in another school of medicine is not involved in this case. The court therefore held that so long as the witness is sufficiently acquainted with the doctrine of the school of the defendant, and if the premises from which he testifies are those of the defendant's own school, the witness is not disqualified simply because he belongs to another school.

The defendants then argued that the court erred in permitting Dr. Wood, an osteopathic surgeon licensed in Michigan but not in Wisconsin, to qualify as an expert. The statute which authorizes the admission of such testimony includes experts from Michigan. Section 147.14 (2) of the Wisconsin statutes provides: "practitioners in medicine, surgery or osteopathy licensed in other states may testify as experts in this state when such testimony is necessary to establish the rights of citizens or residents of this state in a judicial proceeding and expert testimony of licensed practitioners of this state sufficient for the purpose is not available." The plaintiff's evidence indicated that she had consulted six or seven physicians and surgeons licensed to practice in Wisconsin and had been advised that the diagnosis and treatment accorded her were faulty but that the physicians would not appear and testify. She was therefore unable to obtain medical witnesses in her behalf.

The defendants relied strongly on a prior Wisconsin decision in which the court said: "The entire case here rests on the testimony of a physician to the effect that he would have treated the fracture in another way. Physicians are not compelled to choose at their peril between two accepted methods of treatment." In this case, said the Supreme Court, there was conflict between the experts for the plaintiffs and those of the defendants as to whether the fracture should be treated in a hanging sling or partially abducted at 30 degrees, the arm supported by a large axillary pad, or abducted at 90 degrees in a cast. Assuming that all three are accepted methods of treatment and that a doctor would not be liable for selecting any one, there is an additional factor present, however, which distinguishes this case from the one cited by the defendants. There was testimony from which the jury could properly infer that having selected the 90 degree position of treatment, if the doctors had discovered the fracture of the shaft, due care would compel the use of traction.

Defendants next urged that the Supreme Court take judicial notice of the teachings of the University of Wisconsin Medical School and cited from many textbooks on surgery. This court cannot take judicial notice of a medical school course, said the Supreme Court. These texts were not offered in evidence in the trial court and are not properly before the Supreme Court.

Finally, the defendant Komasmiski contended that, on the basis of a prior Wisconsin case, he could not be held for malpractice because the entire responsibility was assumed by the specialist, defendant Bump. In the case referred to, said the court, a family physician who assisted in operating was held not to share responsibility with the surgeon, who committed malpractice during the operation. The distinction between that case and this one, said the Supreme Court, is that here Dr. Komasmiski participated in the diagnosis and continued in active

charge of the case after the cast was applied. From the testimony of one of defendant's witnesses it could be inferred that good treatment would require the taking of roentgenograms within several weeks after the cast was applied to determine position of the bones and progress of healing. We are of the opinion, concluded the Supreme Court, that the liability on the doctors is joint and that the evidence amply supports the finding of the jury. Accordingly the judgment in favor of the plaintiff and against the defendant physicians was affirmed.—*Merrill Komasmiski*, 41 N. W. (2d) 620 (Ist, 1950).

Workmen's Compensation Acts Employer's Right to Physical Examination of Employee—The petitioner filed a claim for compensation for injuries sustained during the course of his employment. A judgment in his favor was reversed by the Court of Civil Appeals, so the petitioner appealed to the Supreme Court of Texas.

The petitioner was injured on June 12, 1947 and was sent by his employer to Dr. Matthews, a Negro physician for examination and treatment. At Dr. Matthews' request, the petitioner was also treated by Dr. Bell. Dr. Matthews was paid by the employer and Dr. Bell was paid by Dr. Matthews. After the compensation claim had been filed, the defendant the employers insurance carrier, filed a motion requesting that the petitioner be ordered to submit to a physical examination by a Dr. Crager, on the ground that the petitioner had never been examined by a physician of the defendant's own selection, as permitted by the workmen's compensation act. The petitioner alleged that he was willing to submit at any time to further examination by Dr. Matthews or Dr. Bell but that Dr. Crager had never examined him and knew nothing of his injuries and that the purpose of the defendant's request was to multiply medical witnesses against the petitioner. At the original hearing on the workmen's compensation claim, the defendant offered Dr. Matthews as its witness and proved his qualifications as an expert. It was brought out on cross examination that he had been treating and examining men for the defendant for about three years and that he had testified in court for the defendant on other occasions.

It is clear, said the court, that there is evidence in the record from which the district court could reasonably conclude that Drs. Matthews and Bell had represented the defendant in treating and examining the petitioner. The court of civil appeals took the view that the district court's refusal to require the petitioner to be examined by another doctor was based on the holding that as a matter of law the defendant was restricted to the doctors who had previously been treating the petitioner. We do not so construe the district court's holding, said the Supreme Court. Rather, we think it should be sustained on the ground that the district court was exercising the discretion granted it by the law to grant or refuse the defendant's request in whole or in part. While the defendant is certainly not restricted as a matter of law to any certain number of doctors, nor is it permanently limited to any doctor because it has previously used him, still we think that the court has discretion in determining how many different doctors it will require the petitioner to allow to examine him and whether the petitioner must submit to examination by other doctors than those previously selected to treat him. The record does not show as a matter of law that Drs. Matthews and Bell were not credible witnesses. The fact that they are Negro cannot be said as a matter of law to require a holding that the district court erred in not requiring an examination by another doctor. The defendant did not make any specific request for a roentgen examination in its motion, and it does not appear that Dr. Crager was a roentgenologist. It does appear that the court was willing to require such roentgen examinations as Drs. Matthews and Bell desired. On the record, the Supreme Court concluded the defendant has failed to show an abuse of discretion on the part of the trial court. Accordingly, the judgment of the district court refusing to grant the request of the defendant for a further examination of the petitioner was affirmed.—*Hall v. Hartford Accident & Indemnity Co.*, 226 S.W. (2d) 612 (Texas 1950).

CURRENT MEDICAL LITERATURE

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American Heart Journal, St. Louis

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Effect of Level of Ligation on Mortality Following Ligation of Circumflex Coronary Artery in Dog J B Allen and J R Laadt—p 273
Multiple Pregnancies in Patients with Rheumatic or Congenital Heart Disease H L Correll and F F Rosenbaum—p 283

Repeated Pregnancies in Rheumatic Heart Disease

—Correll and Rosenbaum report on 52 women with rheumatic heart disease and 1 woman with a congenital cardiac anomaly who completed four or more pregnancies. These patients had a total of 364 pregnancies. The maternal mortality was only 1.3 per cent with regard to the number of pregnancies and only 1 of the 5 deaths was related to congestive heart failure. Congestive heart failure occurred in 15 of the 53 patients or in 41 of the 364 pregnancies, an incidence less than that usually reported in cardiac patients. Congestive heart failure did not increase in frequency as the number of pregnancies increased, a finding which confirms the belief that parity per se bears no direct relationship to the development of heart failure. The age of the patient, the duration of the rheumatic state and the number of attacks of rheumatic fever all seem more important factors influencing the course of the pregnancy in the cardiac patient than the actual number of previous pregnancies. Auricular fibrillation was uncommon in this group, a fact suggesting that they were in a relatively early stage of the natural history of their rheumatic heart disease. Three cesarian sections were performed for obstetric reasons. The authors stress that operative delivery in cardiac patients should be performed primarily for obstetric indications. Repeated pregnancies seem compatible with a considerable life expectancy in some women with heart disease. In considering the advisability of pregnancy one must evaluate individually every patient with heart disease.

American J Digestive Diseases, Fort Wayne, Ind

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American Journal of Medical Sciences, Philadelphia

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- *Surgical Treatment of Spontaneous and Traumatic Intracerebral Hemorrhage F C Grant and G M Austin—p 237
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Microscopic Observations of Circulating Blood of Nine Healthy Normal Horses All of Which had Unagglutinated Circulating Blood Cells and High In Vitro Erythrocyte Sedimentation Rates: Contribution to Theory and General Understanding of Pathologic Circulatory Physiology of Sludged Blood M H Knusely E H Bloch F Brooks and L Warner—p 249
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Disodium Hydrogen Phosphate Therapy in Lead Poisoning C D Proctor and H S Kahn—p 316
Epidemiologic Method Applied to Nutrition J E Gordon and H le Riche—p 321

Spontaneous and Traumatic Intracerebral Hemorrhage

—Grant and Austin operated on 14 patients with intracerebral hemorrhage. The hemorrhage was of traumatic origin in 5, all of whom were men with an average age of 35.4 years and spontaneous in origin in 9, 4 men and 5 women, with an average age of 44.3 years. There were 4 fatal cases, 2 in the traumatic and 2 in the spontaneous group. Necropsy was performed in 3. In none of these was an aneurysm discovered. A localizing hemiparesis and initial unconsciousness were the commonest neurologic observations in both types of hemorrhage. The operative diagnosis was made by means of a burr hole in most cases, followed by aspiration of the hemorrhage through the burr hole and occasionally by a wider exposure following craniotomy. The time interval from initial symptoms of hemorrhage until operation and the type of operation had no important bearing on the postoperative result. The hemorrhages were located in the temporal lobe in 5 of the patients. Other authors have also found the majority of hemorrhages to be in the temporal lobes but spontaneous and traumatic intracerebral hemorrhage may occur in any lobe.

Diagnosis in Cardiovascular Syphilis—Peabody and co workers studied the relative merits of physical findings, conventional chest roentgenograms and angiocardiography in the clinical diagnosis of cardiovascular syphilis in 93 patients including 83 with late syphilis at the New York Hospital. The diagnosis of cardiovascular syphilis was made by angiocardiography alone in 15, excluded in 9 and confirmed in 17 whose chest roentgenograms were normal. Angiocardiography is valuable in the early diagnosis of syphilitic aortitis. Angiocardiography will also denote adjacent nonvascular masses and reveal unsuspected aneurysm of the aorta and its branches. This procedure may be utilized to assist one in the detection of cardiovascular syphilis in patients with late syphilis.

American J Obstetrics and Gynecology, St Louis

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- Necrosis and Detachment of Cervix During Labor W I Finn—p 667
- Effects of Sedation on Fallopian Tubal Motility A M Davids and I Weiner—p 673

Use of Dicumarol® in Pregnant Patient—Adamson and co-workers report on 15 women to whom dicumarol® was given at the onset of labor or who were adequately treated with the drug at the time labor commenced. The results from anticoagulation therapy were dramatic in the prevention and treatment of venous thrombosis and embolism. This agent, properly administered, can be safely used before parturition, during labor or after delivery. There was no increase in immediate or delayed bleeding from the pregnant uterus due to the use of dicumarol®. Any patient who during the gestational period demonstrates acute phlebothrombosis or thrombophlebitis should be hospitalized and treated with the anticoagulant. Such a patient as well as any pregnant patient who has or has had a history of venous disease may be given 300 mg of the drug immediately following the onset of labor, and she should be given dicumarol® for at least ten days following delivery. The authors made it a rule that any patient who has had a venous complication during her pregnancy, barring a definite contraindication, is given 300 mg dicumarol® to take home with her. The patient is advised to take this dose at the onset of labor before leaving for the hospital. Venous thrombosis and embolism are almost entirely preventable by use of the anticoagulant.

Rh Anamnestic Reaction and Its Significance—Schneider and co-workers report anamnestic reactions for the Rh factor in 3 Rh-negative mothers among 6,185 women delivered at Woman's Hospital in Detroit during the period Jan 1, 1947 and July 1, 1948. The anamnestic reaction is defined as a renewed production of an antibody without renewed exposure to the specific antigen. Each of the 3 women had become previously sensitized to the D factor. High anti-D titers developed in d/d mothers, although this time carrying d/d fetuses. The course of antibody production resembled that associated with pregnancies having Rh incompatibilities. The 3 newborn infants were without signs of erythroblastosis fetalis despite the high antibody levels in maternal and newborn serums. It is not possible to distinguish by means of the antibody behavior alone between a benign anamnestic reaction and one which may lead to erythroblastosis. Pregnancy was electively terminated because of concern for the fetus in each of the 3 cases studied. One infant died from respiratory complications incidental to the operation. Obstetric or pediatric intervention based on maternal Rh-antibody production alone is not well advised. Operative intervention may serve only to expose mother or child or both to such risks as are inherent in the surgical procedures.

Erythroblastosis Fetalis—Ginsberg and Feldman report on 50 cases of erythroblastosis fetalis occurring in approximately 11,000 deliveries. The hemolytic disease was due to Rh incompatibility in 45 cases and to ABO incompatibility in 5. Twenty-six of the newborn infants were boys and 24 were girls. There were 8 stillbirths. Jaundice and increased hemopigments in the liver and spleen were present in all 50 infants. Four infants had kernicterus, 4 had hemorrhages in skin and viscera and 1 had pulmonary edema and passive congestion. Twenty-four infants were treated with multiple transfusions, 6 of these infants died. Eleven infants were treated with exchange transfusions without fatalities. Seven infants did not receive treatment, and 1 of them died. Successful management of newborn infants with erythroblastosis depends on close cooperation of obstetrician, pediatrician and immunohematologist and on special laboratory techniques which aid in detecting the mothers who may give birth to affected offspring. Past obstetric history and maternal antibody determinations are essential data in every pregnancy. Decision as to mode of therapy usually cannot be made until after birth of the infant. Then all the clinical and laboratory evidence must be evaluated before exchange transfusion or a more conservative course is undertaken. Exchange transfusion is, at present, the most effective way to treat severe erythroblastosis fetalis. The method of choice is by plastic catheter used in the umbilical vein.

Am J Roentgenol & Rad Therapy, Springfield, Ill

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- Hormonal Therapy of Breast Cancer J B Herrmann—p 326
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- Protective Materials for Field Definition in Radiation Therapy E D Trout and R M Gager—p 396

Hodgkin's Disease Treated Radiologically—Peters reports on pathologically verified Hodgkin's disease in 75 male and 38 female patients between the ages of 1 and 71 years treated radiologically at the Ontario Institute of Radiotherapy, Toronto, during the period of 1924 to 1942. Fifty-eight of the 113 patients survived for five years, giving a gross over all five year survival of 51 per cent. The gross over-all survival rate for ten years was 35 per cent. These survival rates are considerably better than any other reported in the literature. The most important single factor influencing the progress and ultimate survival of a patient with Hodgkin's disease was the extent of involvement on institution of treatment. The second most important factor was the presence of constitutional symptoms on admission. The histopathologic picture was the only proof of the diagnosis and a factor in estimating the severity of the disease. The early age groups tended to respond to therapy better than the later age groups. Hodgkin's disease of women tended to run a more chronic course, which enhanced the survival rate as compared with the male sex. The following clinical classification was suggested: stage 1 with involvement of only one lymph node region or a single lesion elsewhere with no constitutional symptoms, stage 2 with involvement of two or more proximal lymph node regions confined to either upper or lower trunk with or without constitutional symptoms, and stage 3 with involvement of multiple lymph nodes with or without constitutional symptoms, or acute Hodgkin's disease.

kins disease without obvious lymphatic involvement. Intensive irradiation of involved lymph nodes combined with precautionary treatment to the proximal nodes seems to have improved the survival rates in the authors' cases. Early diagnosis, proper classification, early institution of therapy, moderately intensive treatment to the hopeful cases, frequent follow up and institution of irradiation therapy as early as possible in recurrences are the chief factors in the control of Hodgkin's disease.

American Journal of Surgery, New York

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Am J Syphilis, Gonorrhea and Ven Dis, St Louis

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- Studies on Treponemal Immobilizing Antibodies in Syphilis. II. Incidence in Serum and Cerebrospinal Fluid in Human Beings and Absence in Biologic False Positive Reactors. R. A. Nelson Jr., H. E. C. Zheutlin, J. A. Diesendruck and I. G. M. Austin Jr.—p. 101
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Report on 726 Patients Who Were Retreated Following Penicillin Therapy for Early Syphilis. E. W. Thomas and S. Landy—p. 126
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Prolonged Fever Produced with Three Injections of Typhoid Vaccine. R. O. Noojin, B. I. Pace and H. B. Praytor—p. 153
Penicillin and Fever Therapy in Early Syphilis. Report of 161 Patients Treated with 24 Million Units of Penicillin and Physically Induced Fever. I. Plotke, G. N. Schweinlin, R. M. Craig and J. Rodriguez—p. 161
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Fatal Hemoglobinuric Nephrosis Following Intrathecal Penicillin in Neurosyphilis. Case Report. V. Moragues and J. P. Wyatt—p. 177
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Oral Penicillin in Treatment of Gonorrhea. R. C. V. Robinson—p. 187
Experimental Transfer of Chemoresistant Granuloma Inguinale. R. B. Dienst, R. B. Greenblatt and C. H. Chen—p. 189

Report on 726 Patients Retreated After Penicillin Therapy.—Thomas and Landy say that from data on the treatment of syphilis with penicillin published during the years 1943 to 1947 retreatment was necessary for significantly higher percentages of patients treated for early acquired syphilis than for patients treated for congenital syphilis and neurosyphilis. These observations are contrary to previous concepts of anti-syphilitic therapy. Experience with heavy metals and arsenicals led most syphilologists to believe that early acquired syphilis was the easiest type of the disease to cure. The authors believe that the discrepancy between the results following penicillin therapy of early acquired syphilis and of other classifications of the disease can scarcely be attributed to a peculiarity of penicillin. It has been suspected that reinfections were the real reason why retreatment was necessary in a high percentage of

patients with early acquired syphilis. Two reasons can be offered for the larger number of probable reinfections observed after treatment of early than of late syphilis: (1) the human host has had less opportunity to develop permanent immune reactions to reinfection with small numbers of *Treponema pallidum* when the infection is treated early, and (2) patients treated for early syphilis are as a rule more promiscuous than those treated for late syphilis. The authors present data on 689 patients who relapsed or were reinfected one or more times following penicillin therapy of dark field-positive early syphilis at the Rapid Treatment Center at Bellevue Hospital between December 1943 and October 1947. In addition 36 patients were retreated one or more times for so called seroresistance and 1 was retreated for asymptomatic neurosyphilis. Of the 689 patients retreated at least once, 27.4 per cent had a chancre at the first retreatment and an additional 10 per cent admitted exposure to cases of known infectious early syphilis. Of 107 patients retreated at least twice 24.3 per cent had a chancre at the time of the second retreatment and an additional 7.5 per cent admitted exposure to cases of known infectious early syphilis. Of 20 retreated at least three times 25 per cent had a chancre at the third retreatment and an additional 20 per cent admitted exposure to cases of known early infectious syphilis. Of the 689 patients retreated at least once, 44.1 per cent were seronegative for varying periods up to fifty three months prior to the first retreatment. Of 107 patients retreated a second time 30 per cent were seronegative for varying periods up to forty six months prior to the second retreatment. Of 20 patients retreated at least three times, 35 per cent were seronegative for varying periods up to eighteen months prior to the third retreatment. In the opinion of the authors, in over 50 per cent of cases the retreatment was necessary because of reinfection rather than relapse.

Penicillin and Fever Therapy in Early Syphilis.—The 161 patients whose cases are reviewed in this paper exhibited dark field-positive lesions of primary or secondary syphilis. Treatment was discontinued in 13 patients because of reactions. Plotke and others treated 148 patients by the following schedule. Each patient received 40,000 units of sodium penicillin in aqueous medium intramuscularly every three hours for sixty doses over seven and one half days (24 million units total), plus three sessions of three hours each of artificial fever at 106 F rectal level in the Kettering hypertherm[®] on alternate days beginning twenty-three hours after penicillin therapy was started. The failure rate at the twelve to fifteen month observation period for 95 patients who received 24 million units of penicillin in seven and one half days combined with three sessions of artificial fever was 20.2 per cent as compared with 26.8 per cent for 266 patients treated with the same amount of penicillin alone. Corresponding failure rates at the twenty four to twenty seven month period were 28.7 and 37.5 per cent, respectively. The difference in the results of the two schedules confirms previous studies and shows that the addition of fever increases the effectiveness of penicillin therapy.

Am Practitioner & Digest of Treatment, Philadelphia

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- Congenital Duodenal Atresia with Malrotation of Intestine Case Successfully Treated by Duodeno-Jejunostomy G I Madding, M W Everhart and J Heath—p 433
- Metastatic Cancer of Axillary Lymph Node Without Demonstrable Primary Lesion Report of Case with Forty Eight Month Latent Period C T Klopp—p 437
- Mesenteric Vascular Occlusion Case Report of Successful Resection of All But Eight Inches of Jejunum and Ileum R J Chodoff—p 440

Parenteral Nutrition with Dextrose, Amino Acids and Alcohol—Rice and his associates used a mixture of dextrose, amino acids and alcohol in parenteral feeding of more than 600 surgical patients. They aim to provide parenterally the full nutritional and caloric requirements of the individual until he is able to consume food without difficulty. They administer immediately after operation 1,000 cc of fluid containing amino acids 5 per cent, dextrose 5 per cent and 60 cc of 98 per cent alcohol. The patient usually sleeps or dozes during the four hours required for administration. Morphine is seldom required. In the evening another 1,000 cc is given, so that within the first twelve hours after operation the patient receives 100 Gm of amino acids, 100 Gm of dextrose and 120 cc of alcohol, a total of 1,472 calories. The following morning the patient is offered food, and if enough is consumed further nutrition by the parenteral route is not given. If the patient does not eat well, parenteral nutrition is supplemented to the point of the calculated metabolic requirements. This method of nutrition was used also to prepare for operation patients who were considered poor surgical risk. The authors do not maintain that less well nourished patients would not get well, but only that patients who are provided full nutritional requirements feel better, have more rapid wound healing, less discomfort, are more easily ambulated and experience a shorter postoperative convalescence than do patients not receiving this regimen. When alcohol is given parenterally in a caloric ratio proportionate to twice the caloric demands of the patient, the blood alcohol content rises rapidly during the first hour, after which it has a tendency to level off. If the blood alcohol level remains fairly constant at 0.08 Gm per hundred cubic centimeters production of mild sedation and analgesia reduces the need for morphine. Approximately 15 cc of 98 per cent alcohol per hour in parenteral fluids will provide a practical clinical rate of administration for the average adult. A positive nitrogen balance can be attained parenterally in some instances despite a negative caloric balance if an adequate amount of nitrogen is given, but a positive nitrogen balance can be more easily maintained when dextrose and amino acids are supplemented with alcohol than when those two nutritional elements are given alone. The readily available calories derived from alcohol spare nitrogen and to that extent provide energy

which must otherwise be obtained from body reserves. Vitamins B and C (ascorbic acid) and electrolytes can be added as needed.

Archives of Otolaryngology, Chicago

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- Transtympanic Technic in Surgical Otology Transtympanic Procedures O Popper—p 356
- Melker's Syndrome F H McGovern—p 371
- Pressure Changes and Barotrauma Resulting from Decompression and Recompression in Middle Ear of Monkeys H T Chang R Marquis and S Gelfan—p 378
- *Epidermoid Tumors of Frontal Bone Sinus and Orbit E A Thacker—p 400
- Sarcoidosis (Boeck's Sarcoid) of Upper Respiratory Tract Report of Case with Ten Years' Clinical Observation D L Poe and P S Senger—p 414
- Chronic Progressive Deafness, Including Otosclerosis and Diseases of Inner Ear Review of 1947 Literature A L Juers, E L Derlacki and G E Shrimbrough—p 422

Streptomycin in Laryngeal Tuberculosis—Lieberman and Lell found that of 37 patients with laryngeal tuberculosis, who were treated with 1 Gm of streptomycin per day for approximately three months, 21 improved considerably, 8 improved moderately, 5 remained unimproved or had relapse and 3 died from severe bilateral fibrocavernous pulmonary tuberculosis. The toxic reactions to streptomycin included diminished or total absence of vestibular responses, diminished hearing and vertigo and tinnitus. All patients with tuberculous involvement of the larynx showed a definite response. One patient who had a small tuberculoma on the posterior margin of the right vocal cord in addition to a generalized involvement of the mucous membrane showed improvement in the appearance of the mucous membrane, but the tuberculoma persisted and had to be removed by direct laryngoscopy. The larynx cleared completely after the removal of the tuberculoma. One patient with pulmonary tuberculosis, together with what was thought to be a laryngeal extension of the same disease, showed no improvement. Biopsy revealed that this patient had not laryngeal tuberculosis but a malignant lesion. Histologic examination of the tissue removed from the larynx in another case revealed that it was papillomatous. Routine examination of the larynx of the patient receiving treatment is important in order to evaluate the response to therapy. This can be done in most cases by mirror laryngoscopy without much difficulty. Direct laryngoscopy and biopsy should be performed whenever there is any question as to the true diagnosis.

Epidermoid Tumors of Frontal Bone, Sinus and Orbit—According to Thacker epidermoid tumors are rare neoplasms arising from misplaced or aberrant epithelial tissue. They are usually congenital but occur after trauma often enough for one to suspect that injury may play a part in the formation of such tumors. The author discusses the pathology, diagnosis and differential diagnosis and reviews the literature on epidermoid tumors and so-called primary cholesteatomas of the skull sinuses and orbit. He cites a case in which the growth involved the frontal bone, sinus and left orbit. The so-called primary cholesteatomas are actually epidermoid tumors with a high cholesterol content. Extradural epidermoid neoplasms involving the frontal bone, sinus and orbit are firm, slow growing tumors that do not produce symptoms. The cosmetic deformity is the chief reason why persons with this growth seek medical advice. A characteristic round or ovoid defect with smooth borders may be seen in roentgenograms of the skull. The larger such growths become, the greater is the bone destruction and the more difficult it may become to remove them entirely, especially if they are firmly adherent to the dura mater. It is important to remove all of the tumor wall in order to prevent recurrence. One must watch for a low grade osteomyelitis after operations in this region.

Archives of Surgery, Chicago

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Plastic Surgery in the United States Review of 1948 Literature G S Letterman and W C Meloy—p 583

Ethyl Alcohol as Germicide—Price tested various solutions of ethyl alcohol in vitro and on the hands and arms of several persons. In vitro studies using the quantitative spoon test with bacteria in aqueous suspension showed that some concentrations of alcohol are impotent but others are strongly and rapidly germicidal. In general 10 and 20 per cent solutions by weight had little or no bactericidal effect in ten minutes or less at room temperature, 30, 40 and 50 per cent solutions showed progressively greater germicidal power and 60 to 90 per cent solutions by weight were all strongly and rapidly bactericidal much of the killing effect apparently taking place during the first few seconds of contact. Absolute alcohol is somewhat less effective. *Staphylococcus albus* obtained from the resident flora of the skin was observed to be more resistant to ethyl alcohol than either *Staphylococcus aureus* or *Escherichia coli* taken from stock laboratory cultures. Spores of various sorts were found to be highly resistant to all concentrations of alcohol at room temperature although vegetative forms of the same organisms were killed. Sixty per cent alcohol by weight and stronger proved to be an efficient skin disinfectant when tested under conditions of actual use on human hands and fingers. The optimum concentration varied with different persons and even in the same person from time to time probably because of variations in the flora and condition of the skin. Seventy per cent alcohol by weight is still believed to be the solution of choice for disinfection of the skin. It is recommended that the operator, in preparing for surgical procedures should after a thorough scrub dry his hands and arms with a sterile towel and then wash in two solutions of alcohol with washcloth friction first briefly in a basin of 95 per cent by volume (commercial) alcohol and then for two or three minutes in a basin of 70 per cent alcohol by weight. Ethyl alcohol should not be used as a disinfectant in wounds. Simple solutions of ethyl alcohol are not satisfactory agents for cold sterilization of instruments.

Peripheral Embolism—Andrus reports on 65 patients with arterial emboli involving the extremities. Fifteen patients had emboli of the saddle type or involving one or both iliac arteries. Eleven of these died, in 3 of 4 survivors gangrene developed in 1 after embolectomy and 1 of those who subsequently died lived long enough to indicate that gangrene would not ensue. There were 57 instances of embolism in the arteries of the limbs in the remaining 50 patients. The popliteal artery was involved in 23 instances, the femoral in 20, the brachial in 10, the axillary in 3 and the posterior tibial artery in 1. Sixteen of the 50 patients died. The fatalities occurred in 12 instances in connection with arteriosclerotic cardiovascular disease, while in 4 the cardiac lesion was on a rheumatic basis. The average age in the fatal cases was 56 years and in those who survived 44.1 years. There were only 7 instances of gangrene in the entire 57 cases of embolism involving the limb vessels. Saddle embolism and iliac embolism are serious complications and are associated with a high mortality and incidence of gangrene with any form of treatment. Embolectomy is

indicated in patients who will tolerate the operation. It may be combined with the prompt employment of ancillary methods by drugs or surgical procedures directed at the sympathetic nerve supply to relieve associated vascular spasm. Results with conservative therapy in embolism of the femoral and popliteal arteries and of the vessels of the upper extremity were good. They had a mortality rate as low as that in most reported series. Results could be improved by a direct attack on the sympathetic nerve supply temporarily accomplished by a procaine hydrochloride block. Sympathectomy should be resorted to in most instances. Anticoagulant therapy with heparin and dicumarol[®] should be instituted at once in all cases except those in which embolectomy is planned. In these it may be withheld until the close of the operation. Results particularly in the younger age group could be improved if embolectomy were performed in patients seen within twelve hours with femoral or popliteal embolism secondary to old rheumatic heart disease and auricular fibrillation in the absence of cardiac decompensation. The chances of improving the situation for the elderly patients with generalized arteriosclerosis and arteriosclerotic heart disease by adding embolectomy to the conservative measures now available are so small as to contraindicate its use except in rare cases.

Bulletin of Johns Hopkins Hospital, Baltimore

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Renal Hemodynamics in Congenital Cyanotic Heart Disease H W Scott Jr and S R Elliott II—p 58

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- Stimulation of Anterior Pituitary by Certain Cinchoninic Acid Derivatives K C Blanchard E H Dearborn T H Maren and E K Marshall Jr—p 83
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Canadian J of Research Medical Sciences, Ottawa

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Cancer Research, Chicago

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Diseases of Chest, Chicago

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Use of Human Thrombin in Some Cases of Pulmonary Hemorrhage J D Wassersug—p 354
Two Cases of Intra Thoracic Kidney W F Bugden—p 357

Tuberculous Infection from Birth to Old Age—Beaven reports on 9,252 adult persons and 3,000 children through the age of 14 in Rochester, N Y, who submitted to tuberculin tests during the period 1942 to 1944. Results showed that infection with tuberculosis is relatively rare in children at the present time in this community. Reaction to tuberculin after childhood increases precipitously, reaching its maximum at approximately age 50. It declines after 50, probably because the skin of older persons is not so sensitive. The tuberculin reaction proved slightly more prevalent in men up to the age of 30. Men over 30 were observed to be much more often infected. This increased infectivity of the male sex does not seem to be due to environment, but probably represents a sex characteristic. Infected men aged over 30 are more prone to exhibit clinical tuberculosis than women, and the disease is more likely to be fatal. Infection in the age groups between 0 and 14 years, more than at any other time, results in clinical disease and death. Such consequences are less often noted in the age groups between 15 and 29 years and least in persons over 30 years. Since infection, clinical disease and death from tuberculosis in Rochester were all seen chiefly after childhood, the conclusion seems warranted that most cases of adult tuberculosis in this community resulted from infection beyond the age of childhood. The reason that there is more clinical tuberculosis and death from tuberculosis in older ages may well be due to the fact that there is more primary infection in the latter part of life.

Endocrinology, Springfield, Ill

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Journal of Gerontology, Springfield, Ill

5 1-96 (Jan) 1950

- Age Changes in Acid Base Equilibrium of Blood of Males N W Shock and M J Yiengst—p 1
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Sheltering of Aged Thorough Analysis of Living Arrangements of 1900 Old Age Assistance Recipients J J Griffin—p 30
*Studies in Psychology of Senility—Survey S Granick—p 44

Psychology of Senility—Granick's survey of the literature shows that over-all intelligence test performance shows a progressive decline in relation to increase in age. On subtle tests such as vocabulary, general information and reasoning problems in which speed is not a factor, older adults achieve as well as younger subjects. Memory functioning, efficiency of performance and tasks involving the relinquishing of old habits, however, are found to be difficult for old persons. Healthy old adults are capable of making significant contributions to culture, industry and social institutions. The policy of uniformly retiring persons at a specific age seems short sighted. Projective tests show senescence to be associated with a decline in personality functioning in such important areas as emotional flexibility and control and social adaptability. However, there is no increase in emotional instability. Persons who reach old age seem to become increasingly preoccupied with their health, material things and philosophic values. Religious ideas and feelings seem to become more personal and egocentric. Major personality changes take place in later maturity in relation to physical decline, reduced vocational effectiveness, emancipation

tion from family responsibilities and the approach of death. Healthy personalities seem able to adapt to their new life roles without difficulty.

Journal-Lancet, Minneapolis

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Journal of Nervous and Mental Disease, New York

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Multiple Sclerosis (Encephalomyelitis Diseminata Periaxialis) and Vegetative Nervous System: II. Intestinal Disorders in Multiple Sclerosis L Hess—p 109
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- Nervous System Complications of Diabetes Mellitus with Special Reference to Cerebrovascular Changes R DeJong—p 181
Precocious Puberty and Tumor of Hypothalamus with Report of Case and Consideration of Hypothalamo-Hypophyseal Connections C I J Stotijn and W J H Nauta—p 207
Homonymous Hemianopsia in Multiple Sclerosis A Savitsky and L Rangell—p 225
Physiological and Psychological Factors in Electroshock as Criteria of Therapy H Tanner—p 232
Guilt as Etiologic Factor in War Neuroses I N Berlin—p 239

Diabetes and Cerebrovascular Changes—DeJong discusses diabetic neuropathy, myelopathy, encephalopathy, and functional disturbances of the autonomic nervous system, the central nervous system changes associated with hypoglycemia, and the vascular changes with special reference to cerebrovascular disease. A detailed case history served to illustrate the cerebrovascular changes that may occur in a young diabetic patient. Arteriosclerosis is a frequent accompaniment of diabetes mellitus even in young patients. Atherosclerosis and arteriolar sclerosis may affect the cerebral vessels before there is clinical evidence of involvement of the peripheral and coronary arteries and may cause transient lesions, permanent disturbances of function, and generalized cerebral changes. Since insulin has prolonged the life expectancy of the diabetic patient, clinicians have become aware of the almost invariable presence of arterial changes in those with diabetes, even in the juvenile and adolescent patients, and have noted that the present day treatment has failed to avert the accelerated vascular damage, which appears to be an associated phenomenon of the disease and not a true complication. It may well be that a study of the nervous system and its blood vessels in diabetic patients, especially those in the younger age groups, will show that many of the phenomena hitherto unsatisfactorily explained as well as many syndromes of neurologic involvement which have received little attention in the past, are the results of vascular damage to the central and peripheral nervous systems.

Journal of Nutrition, Philadelphia

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Plasma Tocopherol in Diabetes Mellitus E H Bensley, A F Fowler, M A Creighton and others—p 323

Dental Caries in Cotton Rat on a Human Diet—Zeppelin and her associates studied the development of dental caries in cotton rats receiving a diet resembling that of the average human being. It was found that a diet containing foods found frequently in the human diet and containing only 17 per cent sucrose, the proportion consumed by the average person in the United States, produced as many and as severe carious lesions in the cotton rat as did a cariogenic diet with 67 per cent sucrose. When the sucrose level in the diet was increased to 32 or 47 per cent at the expense of the cereal and bread portion, the incidence or extent of caries was not appreciably affected. When the sucrose level of the diet was reduced to 0 or 2 per cent, the occurrence of caries was decreased by 80 and 60 per cent respectively. When the 146 per cent dry whole milk was omitted and liquid whole milk was given separately as the animals' only source of fluid, the same caries scores were obtained as when the natural diet was fed *ad libitum* without liquid milk. Substitution of 36 per cent white bread for dextrin in a moderately cariogenic diet did not appreciably affect the cariogenicity of this ration when it was fed to cotton rats.

Journal of Thoracic Surgery, St. Louis

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Mediastinal Tuberculoma—Samson and co-workers report 2 men and 2 women with mediastinal granuloma. Four additional cases from the literature are cited. A tuberculin test was used in 5 of the 8 cases and the result was positive in 4. This percentage is appreciably higher than in the general

population but does not necessarily indicate a conclusive diagnosis in the individual case. Five of the 8 patients had definite symptoms referable to the mass. Surgical removal of the tumor was performed in all the cases. All presented a similar picture of fibrosis, round cell infiltration, epithelioid cell reaction, multinucleated giant cells and varying degree of caseation necrosis. Seven of the 8 patients showed residual lymphoid tissue, which indicates that in so far as the mediastinum is concerned, the tumors were composed of a granulomatous infection in coalesced lymph nodes. In this, mediastinal granulomas apparently differ from similar masses in the lung. Surgical exploration usually must be done in nearly all instances. When a granuloma is diagnosed at the time of intervention, it should be removed if possible. The tuberculous nature of these granulomas has not been unquestionably proved. More accurate diagnosis of mediastinal granuloma prior to operation seems to be difficult. Concomitant evidence of active tuberculosis or syphilis might suggest the cause of the mediastinal "tumor." Roentgenograms did not demonstrate typical masses. The shadows uniformly mimicked more commonly encountered lesions. Skin testing should be done more frequently. Coccidioidin and histoplasmin skin tests should be performed in addition to tuberculin tests in patients from known endemic areas.

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Kentucky Medical Journal, Bowling Green

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- *Industrial Medicine Today G. R. Rowntree—p. 119
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Industrial Medicine Today—Rowntree states that, since 85 per cent of the medical care given to industrial workers is provided by private practitioners, they must have some knowledge of the various phases of the industrial health program. The private physician who undertakes emergency medical care in industry should be sure that the nurse or first aid worker is instructed in the principles of first aid. The preplacement examination is designed to be used as a basis for placing the worker in a job suitable to his mental and physical capacities. The handicapped worker should not be rejected from employment if he can possibly be fitted into a job. The same applies to persons in the older age group. Emotional problems are

often at the root of illnesses in employees and the physician should remember this when he finds lack of efficiency, inability to get along with other workers, chronic fatigue, frequent absences and accident proneness. Most state health departments have a division of industrial health and if the physician suspects an occupational disease he may obtain aid from this industrial health division in finding the toxic materials to which the patient was exposed and also in correcting hazardous conditions. The medical director of an industrial organization in no way takes the place of the family physician. The industrial physician often finds conditions which require referral to the private physician, such as eye refractions, tonsillectomy, herniotomies and treatment for tuberculosis, venereal diseases, kidney and heart diseases. The industrial physician refers the employee to his family doctor for earlier care than the worker would have sought of his own accord.

Laryngoscope, St. Louis

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- Antibiotics and Sinus Infections F. W. Davison—p. 131
 Surgical Treatment of Bilateral Posticus Paralysis of Larynx L. H. Clerf—p. 142
 *Deafness Due to Allergy R. E. Jordan—p. 152
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 Otogenic Meningitis Due to *Escherichia Coli* Treatment with Chloromycetin A. F. Judge and W. L. Davis—p. 186

Deafness Due to Allergy—Jordan points out that chronic secretory otitis media is a frequent cause of mild deafness. Allergy was found in 85 per cent of 164 patients with chronic secretory otitis media. Although proof that allergy affects the mucosa of the middle ear and eustachian tube is lacking, clinical evidence indicates this lining membrane reacts similarly to that of the nose and nasopharynx. It is not conceivable that negative pressure caused by eustachian tubal block can entirely account for the large amount of serous fluid frequently recovered from the ear and mastoid cavity following paracentesis and inflation. The author describes the progression from simple chronic secretory otitis media to perforation of Shrapnell's membrane. An attic cholesteatoma developed in 1 of 3 patients observed by the author. Nasopharyngeal allergy may cause complications in fenestration operations and in surgical intervention on the mastoid process. Allergy of the inner ear is of interest in connection with Meniere's disease. Of 110 cases with this disease reviewed by the author, 82 had vertigo which in 28 cases the diagnosis was allergic deafness or Meniere's disease without vertigo. The treatment consisted of weekly or biweekly subcutaneous injections of minimal doses of histamine base and other supplementary allergic therapy. The results indicate that early diagnosis and treatment result in restoration of hearing in some cases.

Medical Annals of District of Columbia, Washington

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- *Surgical Treatment of Psychomotor Epilepsy A. A. Morris—p. 121
 Clinical Impressions of Decunthionum Bromide (C10) in Anesthesia Preliminary Report C. H. Spencer and C. S. Corkley—p. 137
 Evaluation of Modern Methods of Treatment of Hypertension W. B. Walsh—p. 136
 Administration of Available Antibiotics Penicillin, Streptomycin, Aureomycin and Chloromycetin (Chloramphenicol) H. I. Hursh and W. Kurland—p. 141

Surgical Treatment of Psychomotor Epilepsy—Morris performed anterior temporal ablation in 5 patients with psychomotor epilepsy. These patients received anticonvulsant medications for many years, but none was able to work. All presented an electrographic psychomotor focus localized to one temporal lobe. None had brain lesions such as scars, vascular lesions or tumor. The anterior tip of the right temporal lobe was ablated in the first patient. In the second patient a partial right temporal lobectomy was performed sparing most of the superior temporal convolution. The anterior 5 cm of the left inferior and middle temporal convolutions was ablated in the third patient. A right anterior temporal lobectomy was performed in the fourth patient and a removal of the anterior 6 cm of the right temporal lobe in the fifth patient. Results after nineteen, fifteen, fourteen, ten and nine months following operation were encouraging. Complete freedom from psychomotor

seizures was obtained in all cases. In addition to the general improvement in the electroencephalogram improvement in memory, abstract thinking, sleep, interest and personality was accomplished. All the patients are working. Postoperatively the medication has been the same or less than the preoperative amount. When petit mal or grand mal was present in addition to the psychomotor seizures, a concomitant improvement in the frequency and severity of grand mal and petit mal attacks was noted. The high incidence of psychomotor seizures in institutionalized patients suggests that this form of epilepsy is especially disabling mentally. Since patients with psychomotor epilepsy are seldom benefited by treatment with any of the antiepileptic substances this study was undertaken to provide some hope for recovery from this mentally destructive form of epilepsy.

Military Surgeon, Washington, D C

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Fractures of Posterior Process of Astragalus A A Michele and F J Krueger—p 130
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Low Sodium Diet Followed by Addison's Disease and Miliary Tuberculosis—According to Friedenbergs treatment of hypertensive cardiovascular disease or congestive heart failure with a low sodium diet is no longer considered an innocuous procedure. Grave complications and death may ensue from sodium depletion. The low sodium syndrome is strikingly similar to acute adrenocortical deficiency. The clinical picture may develop with severe restriction of dietary salt the use of mercurial diuretics that inhibit tubular reabsorption of

sodium and intrinsic renal disease, such as tuberculosis of the kidneys or, rarely, chronic glomerulonephritis. Another complication of a low sodium diet, not previously reported, is the flare-up of quiescent miliary tuberculosis. The author presents the case of a woman aged 63, in whom Addison's disease (chronic adrenocortical deficiency) and miliary tuberculosis were precipitated by a low sodium diet for hypertensive cardiovascular disease.

242 307-348 (March 2) 1950

- *Levels of Circulating Eosinophils and Their Response to ACTH in Surgery Their Use as Index of Adrenocortical Function I Roche G W Thorn and A G Hills—p 307
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Response of Eosinophils to Pituitary Adrenocorticotrophic Hormone (ACTH) in Surgery—According to Roche and his co-workers the levels of circulating eosinophils are intimately related to the activity of the adrenal cortex. Stimuli of alarm are followed by a fall in the level of circulating eosinophils. Stress leads to the release of pituitary adrenocorticotrophic hormone by the hypophysis, the substance in turn stimulates the adrenal cortex, which releases its steroid hormones, of these steroids, those with an oxygen atom on the 11 and 17 carbon positions (the so called 11-oxysteroids and 17-oxysteroids) produce the fall in eosinophil levels. The measurement of the fall in circulating eosinophils after the injection of pituitary adrenocorticotrophic hormone or small doses of epinephrine subcutaneously forms the basis of clinical tests for adrenocortical or pituitary-adrenocortical reserves respectively. The integrity of the adrenal cortex is essential for survival of the patient in a major surgical operation. Patients with Addison's disease and adrenalectomized animals seldom survive even minor surgical procedures unless they are protected by large quantities of adrenal hormones particularly those of the 11-oxysteroid type. The estimation of the blood level of eosinophils has long been utilized as a prognostic aid although the connection with adrenocortical function was not suspected. The measurement of the fall in eosinophils after the injection of 25 mg of pituitary adrenocorticotrophic hormone before operation is a good index of the capacity of the adrenal cortex to excrete 11-oxysteroids and furnishes a good means of preoperative prognosis. In the presence of normal adrenocortical activity there is an almost complete disappearance of circulating eosinophils during the first twenty-four to forty-eight hours after a major operation. The observation of eosinopenia during the same period is in itself evidence of increased adrenocortical activity. Conversely a normal or high eosinophil level during the first twenty-four to forty-eight hours after an operation suggests adrenocortical insufficiency. There is usually a sharp rise of the eosinophil level on the second to fourth postoperative day associated with clinical improvement. This third day eosinophilia is associated with return of normal adrenocortical reserve. The response of the eosinophils to pituitary adrenocorticotrophic hormone during the postoperative period provides a rapid and useful means of assaying adrenocortical reserve whereas the epinephrine response may give equivocal results at at this time.

242 349 386 (March 9) 1950

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Hepatoma Diffuse Multicentric in Origin Cirrhosis of Liver Post-necrotic Type—p 377

Penicillin-Resistant Staphylococcus Aureus—Beigelman and Rantz found that more than half of the strains of coagulase-positive Staphylococcus aureus obtained from clinical material were penicillin resistant.

resistant There was a close correlation between the isolation of resistant strains and previous administration of penicillin, but some were recovered from persons to whom this drug had not been given Thirty per cent of strains of *Staph aureus* isolated from the noses of healthy children who had not received penicillin were resistant to this agent Two cases of sepsis caused by *Staph aureus* with bacteremia, in which massive penicillin therapy was efficacious, are reported It is of the greatest importance that penicillin-sensitivity tests be carried out during the study of infections If this is not done, valuable time may be lost in the treatment of the disease with penicillin Although many penicillin-resistant organisms have been inhibited by low concentrations of streptomycin, the 2 cases described demonstrate that this agent may not be particularly effective in the management of serious staphylococcal sepsis Studies indicate that penicillin-resistant staphylococci will be readily inhibited by aureomycin in vitro Concurrent administration of aureomycin and streptomycin may be of value

Outbreak of Smallpox in a Hospital—Schulze reports that on Jan 15, 1947 the army hospital at Wiesbaden, Germany, received a patient with the presumptive diagnosis of smallpox The patient was transferred by ambulance from an American dispensary at Liege, Belgium He had become ill on January 7 with an upper respiratory infection Three days later a macular rash on the face and a whitish enanthem on the buccal mucosa appeared During the next few days the rash became papular and later vesicular The diagnosis of smallpox was verified by laboratory tests Although the patient had been in isolation from the start, 18 other cases occurred in Wiesbaden Because of the absence of other nearby foci of infection all cases in and about Wiesbaden were thought to have a common origin The manner of spread of the virus from the isolation ward was not completely ascertained, but transport of the virus on persons or fomites was undoubtedly involved In some cases the drawing of blood samples by the same laboratory worker might have been a factor involved in the spread The dispensary in Liege, where the aforementioned case originated, had sent the bedclothes to a laundry without prior sterilization, and an outbreak of smallpox occurred in that city A Paris focus was believed to have been responsible for 48 cases that subsequently occurred in England The vaccination program instituted after the development of secondary cases in the Wiesbaden hospital outbreak, and perhaps the improvement of isolation procedures, prevented the further spread of the disease Fomites, or mild, unrecognized transitory cases, or both, are an important source of spread of smallpox Many vaccinations against smallpox are worthless because of the employment of poor technique or an impotent virus A person having no vaccination mark or giving no clearcut history of successful vaccination should show a pustular lesion six to twelve days after successful vaccination If this does not occur, the vaccination should be regarded as a failure and should be repeated with a vaccine of known high potency An immune reaction (accelerated reaction in an immune person) cannot be distinguished from a "nontake" (vaccination failure) unless the site is examined on the second or third day after vaccination The diagnosis of smallpox should be attempted by laboratory means and should not await the occurrence of secondary cases

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 *Treatment of Hemophilus Influenzae b Meningitis Report of 67 Cases K J McMorrow and F H Top —p 452
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 *Nephrotic Syndrome I Natural History of Disease L A Barnes, G H Moll and C A Janeway —p 486

Subacute Bacterial Endocarditis of Diphtherial Origin—Almklov and Hansen report 1 case of subacute bacterial endocarditis caused by *Corynebacterium diphtheriae* in a girl aged 8 Two positive blood cultures of virulent intermediate strain of *C diphtheriae* were obtained This organism was sensitive to 0.05 units per cubic centimeter of penicillin and to 30 units per cubic centimeter of streptomycin Penicillin was administered in doses of 200,000 units every three hours intramuscularly for one month, but the response was poor When streptomycin 0.5 Gm every six hours by intramuscular route was added to the penicillin, the response was dramatic The dose of streptomycin was reduced nine days later to one half The drug was discontinued after 23 Gm had been given during a sixteen day period A total of 75,200,000 units of penicillin was given parenterally within three months This clinical experience tends to substantiate Hewitt's work in animals, which demonstrate that streptomycin is much more effective in saving guinea pigs injected with *C diphtheriae* than penicillin In vitro tests with the organism isolated from the patient revealed neither evidence of synergism nor antagonism when studied with combinations of penicillin, streptomycin, sodium sulfadiazine and aureomycin The authors' patient is the first to have recovered from subacute bacterial endocarditis caused by *C diphtheriae* None of the 17 patients cited in the literature with *C diphtheriae* as the causative organism of subacute bacterial endocarditis has survived

Hemophilus Influenzae Type B Meningitis—McMorrow and Top report on 38 males and 29 females with meningitis caused by *Hemophilus influenzae* type B, who were admitted to the Herman Kiefer Hospital in Detroit during the period of January 1943 to September 1948 Thirty-three patients were less than 2 years of age, and 11 of the 17 patients who died belonged to this age group, thus accounting for 65 per cent

the deaths. The corrected fatality rate for the group under 2 years of age is 18.2 per cent with the omission of patients who died within thirty six hours of admission and patients admitted to the hospital after twenty-one days of illness. Thirty-seven patients were treated with sulfadiazine and serum, 5 with sulfadiazine and streptomycin, 18 with sulfadiazine, serum and streptomycin and 4 with sulfadiazine alone, 2 did not receive specific treatment. Death occurred in the 4 patients admitted and treated at the end of the third week of illness. Both deaths in the patients under 2 years of age who received sulfadiazine, serum and streptomycin occurred in children who had been ill three weeks before receiving treatment. The prognosis is likely to be unfavorable in the age group under 2 years if treatment is delayed beyond the fourteenth day. The fatality rate for patients who received sulfadiazine and serum was the same as for patients who received streptomycin in addition. Serum therapy proved ineffective in the age group under 2 years when delayed beyond the fourteenth day of illness. The intravenous route for administration of serum offers no advantage over the intramuscular route with respect to prognosis.

Nephrotic Syndrome—Barness and co workers report on 208 patients with the nephrotic syndrome who were admitted to the Children's and Infant's Hospital in Boston during the period of 1926 to 1948. One hundred and sixty one patients had lipid nephrosis and 47 had chronic glomerulonephritis in the nephrotic stage. The main criteria observed for differentiating between these two forms of the nephrotic syndrome were the presence of hypertension or azotemia for longer than one month in the patients in the nephrotic stage of chronic glomerulonephritis, which occurs more frequently in children over 4 years of age. Other features of the two diseases may be indistinguishable. One hundred and thirty-six of the 161 patients with lipid nephrosis had been followed, 45 of these died. Twenty nine of the 47 children in the nephrotic stage of chronic glomerulonephritis were followed, 22 of these died. Lipid nephrosis is characterized by the insidious onset of edema in young children, usually between the ages of 1 and 4. There is edema, hypoproteinemia, hypercholesteremia and heavy proteinuria. Symptoms and observations in lipid nephrosis may persist one to three years. Exacerbations with infection followed by remissions shortly after the infection are relatively common. Prognosis is not related to the number or duration of exacerbations. It became more favorable with the advent of sulfadiazine and the newer antibiotics when death from intercurrent infection as the chief cause became less common. There is apparently no constitutional defect in these children before the onset of the disease, and their growth and development are normal after recovery. No method of treatment proved wholly satisfactory. Paracentesis transfusions and a low sodium diet are the most common supportive measures. Injections of concentrated human serum albumin low in sodium content may be useful in relieving edema, but the effect is apt to be transitory. About one half of the patients with lipid nephrosis apparently recovered completely without residual disease, while a small number showed persistent albuminuria or hypertension. The prognosis is poor in patients in the nephrotic stage of chronic glomerulonephritis, the renal disorder being the major cause of death.

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- The Alcoholic of Today—A Sick Person R V Seliger—p 114
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- Critique of Physiopathological Theories of Etiology of Alcoholism L E Wexberg—p 113
- Group Therapy in Alcoholism Transcriptions of Series of Sessions Recorded in Outpatient Clinic IV Fifth Session R G McCarthy—p 119

Effect of Alcohol Ingestion on Driving—The impairment of the ability to drive an automobile at alcohol concentrations in the blood exceeding 0.10 to 0.15 per cent has been established beyond doubt. The road tests described by Bjerver and Goldberg aimed to determine the influence of lower concentrations of alcohol. They were performed by expert drivers before and after the consumption of 40 or 53 cc. of absolute alcohol contained in beer (1 or 1.3 liters at 4 per cent by volume) or in distilled spirits (100 or 130 cc at 40 per cent by volume). The performances were evaluated by objective measurements. Laboratory experiments were carried out with a number of the same subjects. The authors found that the drinking of beer or spirits caused a deterioration in the driving performance of between 25 and 30 per cent at alcohol concentrations in the blood of 0.04 to 0.06 per cent. This effect could be distinguished from that which is caused by practice and fatigue, by comparison with the control group of drivers who performed the same tests without alcohol. The controls improved their driving by 20 per cent. The threshold of impairment of driving ability is an alcohol concentration of 0.035 to 0.04 per cent in the blood. If consumed in the form of beer, alcohol leads to a lower alcohol concentration in the blood and hence to a lesser degree of impairment than the same amount of alcohol consumed in the form of distilled spirits. In the present study there was 186 per cent impairment with beer as against 327 per cent impairment with distilled spirits. Nine teen of the subjects who took part in the practical road tests (9 as controls) repeated two laboratory tests the flicker test and the blink test. The drinking of 100 or 130 cc. of distilled spirits containing 40 per cent alcohol by volume corresponding to 0.52 Gm of alcohol per kilogram of body weight, caused a deterioration of 32.4 per cent on the flicker test and 35.0 per cent on the blink test at an average alcohol concentration in the blood of 0.056 per cent. The results correspond to the road test impairment of 327 per cent in the same subjects. The controls showed no change in performance.

Review of Gastroenterology, New York

17 155-226 (March) 1950

- New Means of Detoxicating Body by Replacing Bile Liver System by Kidneys as Organs of Excretion of Substances Bound to Artificial Colloids R Schubert—p 165
- Herniae Concealing Underlying Pathology B J Ficarra—p 180
- Peroral Use of Protein Hydrolysates Co Tut—p 184
- Corticodiencephalic Gastrointestinal Syndromes in Epileptics (Part III) T S P Fitch A W Pigott and S M Weingrow—p 189
- Socialized Medicine R J Cushing—p 204

Rocky Mountain Medical Journal, Denver

47 81-160 (Feb) 1950

- "Medical Grand Jury" Plan of Investigating Patients' Dissatisfactions H T Sethman—p 99
- Acute Free Perforations of Gallbladder Analysis of 6 Cases R G Goodall—p 102
- Management of Breech Delivery H S Morgan—p 107
- Use of Intravenous Procaine in Miscellany of Cases D W Boyer, J T F Barwick and C E Meidt—p 110

47 161-236 (March) 1950

- Lung Resection for Suppurative Disease of Lung F R Harper and W B Condon—p 179
- Masquerade of Cutaneous Malignancy F D Weidman—p 186
- Treatment of Carcinoma of Urinary Bladder H J Beck and J F Griffin—p 191
- Effects of Altitude on Human Body R B Patterson—p 194
- Treatment of Migraine with Dramamine E Brentan—p 197

Dimenhydrinate for Migraine—Brentan found dimenhydrinate (dramamine) effective in 7 cases of migraine. By using the drug at the onset of prodromal symptoms, all the manifestations of the migrainous headaches were aborted and the patients were able to resume normal activities almost immediately. All these patients had been treated previously with the usual medicaments and had received only slight, if any, relief.

Surgery, Gynecology and Obstetrics, Chicago

90 257-384 (March) 1950

- *Direct Operative Removal of Benign Mixed Tumors of Anlage Origin in Parotid Region with Summary of Parotid Tumors in General J B Brown, F McDowell and M P Fryer—p 257
- Wound Healing Cutaneous and Serum Inhibition of Hyaluronidase Experimental Study J W Cole D T Shaw and P Fraser—p 269
- Optimal Rate Flows of Carbon Dioxide in Clinical Kymographic Uterotubal Insufflation I C Rubin—p 275
- Technique for Excision of Portions of Entire Thickness of Ventricles of Heart—Experimental Study B N Carter and B G MacMillan—p 282
- Repair of Collateral Ligaments of Knee B E McConville—p 291
- Cholelithostomy—Advantages of Modified T Tube R R Best—p 295
- Pregnancy Following Cervix Cancer Report of 2 Cases Treated in Pre-invasive Stage J E Ayre—p 298
- Oblique Nailing of Femoral Neck Fractures M G Hardinge—p 305
- Parotid Tumors in Children J M Howard, A J Rawson, C E Koop and others—p 307
- Hematological Changes and Iron Metabolism of Normal Pregnancy C E Rath, W Caton, D E Reid and others—p 320
- Clinical Method for Recording Internal Carotid Pressure Significance of Changes During Carotid Occlusion W H Sweet, S J Sarnoff and L Bakay—p 327
- *Histopathologic Study of Radiation Injuries of Skin H A Teloh M L Mason and M C Wheelock—p 335
- Amount of Carbohydrate Required to Prevent Ketonuria in Patients After Operation C Wren and L Sachar—p 349
- Blood Transfusion Organization P I Hoxworth—p 353
- Clinical and Pathologic Studies of Benign and Malignant Gastric Ulcers O F Grimes and H G Bell—p 359
- Action of Aqueous Corpus Luteum Extract upon Uterine Activity J C Krantz Jr, H H Bryant and C J Carr—p 372

Removal of Benign Mixed Tumors in Parotid Region

—Brown and his associates say that anatomically the main concern in removing benign mixed tumors of anlage origin in the parotid region is the relationship of the parotid gland and the tumor to the facial nerve. The cross section of a parotid gland resembles a dumbbell. After the facial nerve leaves the skull it enters the region posteriorly beneath the superficial lobe, where it divides around the glandular continuation of the superficial to the deep lobe or the isthmus into the two main trunks for distribution to the face. Since most benign tumors are found in the superficial lobe, it seemed most logical to use a direct surgical approach. Tumors occasionally arise under the nerve and extend even to the pharyngeal wall. To make sure that the nerve is preserved, the direct approach should include a complete exposure of the area so that if the nerve is on top of the tumor it may be identified, if it is under the tumor and perhaps adherent to it wide exposure will make it possible to

"dodge" the nerve. Of 149 tumors of primary origin in the parotid region with operation 67 per cent were benign mixed tumors. In 115 patients who have been operated on for removal of benign tumors of the parotid, three methods of avoiding the seventh nerve have been used. The procedure which is described permits a direct approach to the tumor with direct view of adjacent or overlying nerve fibers. This approach also allows a radical type of excision which would include the removal of the entire gland, the ramus of the mandible and neck dissection. This direct operative approach to the tumor has been used in 75 patients with benign mixed tumors. There was no paralysis of the facial nerve, and no evidence of recurrence over a period of ten years. The chief advantages of this operation are the wide uncovering of the parotid area by elevation of a large facial flap and the direct removal of the tumor by extremely careful dissection without damage to the seventh nerve.

Radiation Injuries of Skin—Teloh and his associates suggest a histologic classification of radiation dermatitis. Class 1 includes all simple irradiation reactions of the skin, class 2 lesions characterized by varying degrees of dyskeratosis and dysplasia of the epidermis, and class 3, cases in which there is evidence of carcinoma in situ. The line of distinction between classes 3 and 2 is nebulous. In class 4 are placed cases with invasive carcinoma in which the malignancy is localized. Class 5 includes cases of carcinoma with either extensive local invasion or distant metastases. A total of 215 specimens which were obtained from 121 patients were examined. Thirty-four (28.1 per cent) showed evidence of carcinoma. The diagnosis of early carcinoma is now a cytologic rather than a histologic problem. The epidermal changes consisted of atrophy, acanthosis, hyperkeratosis and occasionally parakeratosis. The authors stress dysplasia of the epithelial cells as a stage in the formation of a carcinomatous lesion. Vascular changes were the most commonly found pathologic lesion in irradiated skin. The stromal changes were nonspecific and resulted partly from the inflammatory change due to irradiation and partly from the vascular changes with ischemia. The hair follicles and especially the sebaceous glands proved extremely sensitive to radiation injury. The arrectores pilorum underwent swelling, hydropic degeneration and atrophy. The sweat glands were the most resistant to radiation injury. Malignancy is usually localized by the stromal barrier. The fundamental biologic behavior is identical with that of any squamous cell carcinoma of the skin. Irradiation injuries due to treatment of benign dermatoses are briefly discussed, and evidence is presented which supports the direct carcinogenic effect of radiation on the epidermal portion of the skin.

Western J Surg, Obst & Gynecology, Portland, Ore

58 41-88 (Feb) 1950

- Cystic Hygroma of Neck G E Ward, J W Hendrick and R G Chambers—p 41
- Direct Parallax Method of Stereoscopic Pelvimetry C E McLennan—p 48
- Triplet Gestation and Delivery with Report of 15 Cases D W Beacham and W D Beacham—p 54
- Surgery of Pancreas H S Chapman—p 57
- Physiologic Prevention of Postpartal Relaxation of Genital Muscles L F Bushnell—p 66
- Primary Carcinoma of Fallopian Tube Review and Case Report R M Hill—p 68
- Report of 133 Consecutive Cesarean Sections H J Andrews—p 71
- Obstetric Saddle Block Anesthesia with Lucaine Hydrochloride A C Barnes and F B Hapke—p 76
- Tying the Umbilical Cord Simple Modification of Long Recognized Procedure H W Mayes—p 80
- Avulsion of Vagina During Labor E M Broen—p 82

Wisconsin Medical Journal, Madison

49 105-180 (Feb) 1950

- Coccidioidomycosis Report of Case with Cutaneous, Osseous Pulmonary and Neurologic Manifestations C W Stoops Jr and S A M Johnson—p 125
- Pernicious Anemia of Pregnancy F J Hofmeister, J G Stouffe and J S Stehlin—p 129
- Bacterial Endocarditis Review of 70 Cases Over Ten Year Period W M Fitzgerald—p 131
- Management of Acute Injuries of Head H J Svien—p 135
- Benign Ulcer of Transverse Colon J M King and L R Weitzel—p 139

FOREIGN

An asterisk () before a title indicates that the article is abstracted
Single case reports and trials of new drugs are usually omitted*

British Journal of Tuberculosis, London

44 1-30 (Jan) 1950

*Study of Incidence and Epidemiology of Tuberculous Infection in Elementary School Population of the County of Radnor T E Jones Davies—p 1

Tuberculous Infection in Elementary Schools—Jones Davies surveyed the incidence of tuberculous infection in the elementary school children of a rural county in Wales, the sources of such infection and the contributory social and other possible factors. The presence of tuberculous infection was detected by patch test, using double strength tuberculin jelly as prepared by Jensen, a modification of the method described by Monrad. A preliminary investigation showed that the tuberculin patch test was 100 per cent reliable when compared with the Mantoux test. The incidence of tuberculous infection was 65 per cent. Seventy-six per cent of reactors were found to have been in direct contact with a person who had pulmonary tuberculosis. Investigation of the sources of contact infection showed that tuberculosis is a highly infectious disease, but spread of tuberculous infection of the human type did not occur within the schools. The incidence of tuberculous infection bore no relationship to poor housing, bad sanitation, nutritional state, high rainfall, low mean temperature, low number of sunshine hours, exposure to rain-bearing winds, geologic formation or susceptible anthropologic types. The author cites other reports indicating that poor housing has no relation to the incidence of tuberculosis. It is the number of infecting foci in a slum area that is the most important factor. *Housing becomes important only when healthy persons are compelled by overcrowding and bad ventilation to inhale massive doses of germs.* The maintenance of the optimum nutritional state is next in importance to the removal of the infecting reservoir in the prevention of the onset of tuberculous disease. Fatigue is equally detrimental to bodily well-being. Good feeding, however, will do much to allay the onset of fatigue.

British Medical Journal, London

1 387-448 (Feb 18) 1950

Recent Developments in Field of Health in India K C K E Raja—p 387
Maternity and National Health Service J Young—p 392
Psychology of Surgical Patient A Kennedy—p 396
Treatment of Concealed Accidental Haemorrhage of Pregnancy D Crichton—p 401
Post Dysenteric Colitis G T Stewart—p 405
Prognosis in Bronchial Asthma D McCracken—p 409
Low Spinal Analgesia in Operative Obstetrics Further Series of 511 Cases E E Rawlings—p 412
Caudal Analgesia T C Thorne—p 414

1 449-502 (Feb 25) 1950

Devices for Protection of Worker Against Injury and Disease. D Hunter—p 449
Pentamethonium and Hexamethonium Iodide in Investigation of Peripheral Vascular Disease and Hypertension C C Burt and A J P Graham—p 455
*Effect of Hexamethonium Iodide on Gastric Secretion and Motility A W Kay and A N Smith—p 460
Changes in Size of Red Cells During Normal Pregnancy W H H Merivale and G O Richardson—p 463
Direct Microscopical Examination of Faeces in Infants C A C Ross—p 465
Chloramphenicol and Venereal Diseases R R Willcox—p 467

Effect of Hexamethonium Iodide on Gastric Secretion—According to Kay and Smith two principles underlie most of the methods of treating peptic ulcer—namely, reduction of the acidity of the gastric juice and relief of spasm. Of the drugs available for these purposes atropine is the most potent, but often it cannot be used owing to its side effects. Recently tetraethylammonium bromide has been investigated, but its use is not practicable. The authors investigated hexamethonium iodide (C6), which is a member

of the homologous series of polymethylene-bis(trimethylammonium diiodide) compounds. Three members of this series have recently been investigated clinically. They all seem to act by impeding the transmission of nerve impulses, but there are differences in their point of action. Thus the deca compound (C10) blocks the neuromuscular junction of striated muscle and consequently has a curare-like effect, while the penta compound (C5) exerts its main action at the preganglionic sympathetic synapses and is effective as a vasodilator. The hexa compound (C6) has a profound effect on gastric secretion and motility. The authors studied the effect of hexamethonium iodide on 10 men with clinical and roentgenologic evidence of duodenal ulcer. It was found that when hexamethonium iodide was given intramuscularly it inhibited spontaneous secretion of hydrochloric acid. A single dose of 100 mg produced achlorhydria for as long as three hours. Repeated doses effected a substantial reduction in the volume and acidity of the night secretion. The fact that this compound prevents the development of a true insulin response suggests that it acts by vagus blockade. It does not affect the response to histamine. The gastric motor activity was considerably inhibited by the drug.

Journal of Endocrinology, London

6 245-362 (Jan) 1950 Partial Index

Effects of Desoxycorticosterone Acetate on Electrolyte Distribution in Tissues of Adrenalectomized Rat. D F Cole—p 251
Effect of Androgen and Oestrogen on Testes of Immature Monkeys P L Krohn and S Zuckerman—p 256
Properties of Ovarian Connective Tissue in Relation to Parenchymatous Changes H R Catchpole, I Gersh and S C Pan—p 277
Glycoproteins in Thyroid Gland of Rats I Gersh—p 282
Mucolytic Activity of Thyroid Gland M D Levine—p 288
Intravaginal Assay of Naturally Occurring Oestrogens C W Emmens—p 302
Estimation of Chorionic Gonadotrophin in Urine of Pregnant Women J A Loraine—p 319
Urinary Oestrogen Excretion During Labour B E Clayton and G F Marrian—p 332

Journal of Mental Science, London

96 1-358 (Jan) 1950 Partial Index

Functions of Electrical Rhythms in Brain W G Walter—p 1
Somatic Manifestations of Schizophrenia Clinical Study of Their Significance I M Shattock—p 32
Experimental Studies on Frontal Lobe Functions in Monkeys in Relation to Leucotomy R K Freudenberg, P Glees and S Obrador—p 143
Anatomical Comments on Psychosurgical Procedures E Beck, T McLardy and A Meyer—p 157
Body Size Personality and Neurosis L Rees—p 168
Role and Future of Psychotherapy Within Psychiatry J Rickman—p 181
*Rorschach Pattern in Duodenal Ulcer A. Kaldegg and D O'Neill—p 190
Tuberculosis in Mental Hospital Five Years Mass Radiography D F Early—p 199
Atypicality and Depressive State H F Jarvie—p 208
Concentration of Adenosinetriphosphate (ATP) Citrate and Calcium in Blood During Insulin Shock Therapy H Weil Malherbe—p 226
Recent Developments in Industrial Selection Techniques W S Porteous—p 235
Electro-Narcosis in Treatment of Schizophrenia A B Monro—p 254
Treatment of Mental Defectives with Aneurin for One Year G de M Rudolf—p 265
Improvement in Mental Defectives in Colonies G de M Rudolf—p 272
Congenital Double Athetosis Deaf Mutism and Mental Deficiency Report of 5 Cases B W Richards—p 280
*Spontaneous Hypoglycaemia and Diabetes Mellitus Associated with Insulin Coma Therapy of Schizophrenia D McGrath—p 285

Rorschach Pattern in Duodenal Ulcer—This study by Kaldegg and O'Neill was part of an investigation into the physical and mental status of 20 patients with duodenal ulcer undertaken at Guy's Hospital. Each patient was subjected to a routine biophysical and biochemical investigation, a clinical interview and the Rorschach test. Information about the patient was gained also from his relatives and employer and

from his behavior while in the hospital. In the majority of the patients phases of activity of the ulcer dyspepsia were correlated in time with crises in the patient's personal life. In the Rorschach test the stimulus material is relatively unstructured, the images which the patient produces in response to the test are in large measure a projection of his own mental content. The Rorschach records revealed no predominance of a single personality type, the most conspicuous abnormal features were anxiety, emotional instability and immaturity.

Spontaneous Hypoglycemia and Diabetes After Insulin Coma for Schizophrenia—McGrath reports on 2 schizophrenic patients who had received insulin shock therapy. One patient had attacks of spontaneous hypoglycemia over a period despite the withholding of insulin. Blood dextrose studies showed a gradual return to normal over a period of four weeks. In the second patient diabetes mellitus developed within a month of the completion of a course of insulin coma therapy. It is suggested that this patient was genetically predisposed to diabetes mellitus. The author comments on the rarity of reports on the concurrence of schizophrenia and diabetes mellitus in the same patient.

Lancet, London

1 287-334 (Feb 18) 1950

- Concept of Genetotropic Disease R J Williams, E Beerstecher and L J Berry—p 287
Disintegration of Human Dentine by Bacterial Enzymes D G Evans and A S Prophet—p 290
Clinical Trial of Occlusive Plastic Dressings R S T Schilling, M Roberts and N Goodman—p 293
Progesterone in Treatment of Rheumatoid Arthritis Clinical Trial in 5 Cases W R M Alexander and J J R Duthie—p 297
Effects of Sulphonamides on Serum Protein, Plasma Viscosity and Erythrocyte Sedimentation Rate J Harkness—p 298
Male Frog (*Rana esculenta*) Pregnancy Test and Its Clinical Application J Biernarz—p 299
Respiratory Obstruction in Haemophilia Recovery After Intubation W H T Boyd—p 302
Kidney Exposure Through Twelfth Rib C P Sames—p 303

1 335-380 (Feb 25) 1950

- Body Image in Neurology M Critchley—p 335
*Tuberculous Meningitis in Children Rhythm of Treatment Progress and Results D MacCarthy and T P Mann—p 341
Perforated Meckel's Diverticulum by Tomato Skin J N Ward McQuaid—p 349
Iungus Infection of Rectosigmoid Junction M S Campbell and A J Shillitoe—p 350
*Effects of Desoxycortone and Methylene Blue in Rheumatoid Arthritis Attempt to Explain Action of Ascorbic Acid on Desoxycortone L Hallberg—p 351

Streptomycin for Tuberculous Meningitis in Children—MacCarthy and Mann review results obtained with streptomycin in the treatment of 43 children with tuberculous meningitis between January 1947 and June 1948. The shortest period of observation was one year and four months, the longest two years and eight months. All except 2 of the children were less than 7 years of age. In 40 of the 43 children the diagnosis was proved by bacteriologic examination. Various treatment schedules were employed. The authors gained the impression that the initial response to treatment depends on a combination of several factors besides streptomycin—age, mechanical obstruction of the cerebrospinal pathways, early diagnosis, innate resistance to tuberculosis and perhaps virulence of the tubercle bacillus—and is not greatly influenced by the manner of treatment at the start. The proportion of recoveries will depend much more on the number of initially responsive cases than on the particular rhythm of treatment. In cases showing an initial response to treatment the shortest road to full recovery seems to be a three months' course of combined intramuscular and intrathecal streptomycin (with not less than fifty intrathecal injections) followed by intramuscular treatment until the cerebrospinal fluid has been normal on two occasions over a period of three months. A high proportion of survivors and ultimately of full recoveries can be obtained by giving a much shorter course of combined treatment with rest periods (plus intramuscular continuation treatment), provided this is repeated whenever the cerebrospinal fluid response is inadequate or recrudescence threatens. But this method is liable to extend the treatment for well over a year and cannot be recommended in practice.

quate or recrudescence threatens. But this method is liable to extend the treatment for well over a year and cannot be recommended in practice.

Desoxycorticosterone Acetate and Methylene Blue in Rheumatoid Arthritis—Hallberg says that shortly after Hensch and associates had demonstrated the dramatic improvement that can be obtained in rheumatoid arthritis with cortisone and pituitary adrenocorticotrophic hormone (ACTH). Lewin and Wassen reported that combined treatment with desoxycorticosterone acetate and ascorbic acid almost immediately relieves the rheumatic symptoms. This treatment, if it fulfils expectations, will mean a great step forward, because desoxycorticosterone, unlike cortisone and pituitary adrenocorticotrophic hormone, is a synthetic product cheaply manufactured in unlimited quantities. The dosage of desoxycorticosterone is less and the speed of action greater than those of cortisone and pituitary adrenocorticotrophic hormone. Hallberg considers it important to find out whether the interaction of desoxycorticosterone and ascorbic acid leads to the formation of a third substance and, if so, what this substance is. It seems most probable that ascorbic acid oxidizes desoxycorticosterone. One way to test whether ascorbic acid oxidizes desoxycorticosterone when injected in this combined treatment is to try to obtain the same clinical effect by substituting another oxidizing agent for the ascorbic acid. The author used methylene blue. Patients were given desoxycorticosterone, 5 mg intramuscularly, and immediately afterward methylene blue, 8 cc of a 5 per cent solution intravenously. Controls were given methylene blue alone, desoxycorticosterone alone, ascorbic acid alone or desoxycorticosterone and ascorbic acid according to the method of Lewin and Wassen. The methylene blue causes a bitter taste in the mouth and cyanosis, but the latter disappears in a few minutes. The method was tried in 8 patients, 6 with rheumatoid arthritis, 1 with rheumatoid spondylitis and 1 with acute gouty arthritis. The same rapid and pronounced improvement was obtained in all after combined treatment with desoxycorticosterone and methylene blue, as well as after combined treatment with the former and ascorbic acid. If the same substance is formed when desoxycorticosterone and methylene blue are injected as when the former and ascorbic acid are injected, as the results suggest, this substance is an oxidation product of desoxycorticosterone. In most cases the injection of methylene blue alone or ascorbic acid alone had a slight beneficial effect. This can be explained by the oxidation of steroids present in the body into active substances. The fact that the full beneficial effect is reached only if desoxycorticosterone is given with methylene blue or ascorbic acid proves that the active substance formed by the combined treatment originates chiefly from the desoxycorticosterone. The experiments suggest that the physiologic role of ascorbic acid in the adrenals is that of oxidizing the steroids present into various active adrenal hormones.

Acta Chirurgica Scandinavica, Stockholm

99 189-284 (Dec 23) 1949 Partial Index

- Tuberculosis of Stomach M Andreassen and G Vraa Jensen—p 189
*Comments in Connection with Follow Up of Patients After Vagotomy L Troell—p 197
Carcinoma of Thyroid Contributions to Its Clinical Picture, Histopathology, Treatment and Prognosis A Bertelsen, E Christensen and V Eskelund—p 205
*Insuloma with Absence of Hypoglycemia B Fries—p 225

Follow-Up of Patients After Vagotomy—Troell performed vagotomy on 38 patients, 29 with duodenal ulcer, 6 with gastric ulcer, 1 with gastro-jejunal ulcer and 2 with the dumping syndrome. The abdominal route was employed in 36 and the transthoracic route in 2. Planned total vagotomy was carried out in 28 patients, but selective vagotomy according to Franksson was performed on 8 patients in whom the pyloric branch of the left vagus nerve and the celiac branch of the right vagus nerve were spared in order to prevent denervation of the portions of the stomach which do not produce acid. Immediate postoperative results were satisfactory in that pain subsided in all except 1 of the 38 patients. Microscopic examination of the resected segments showed

that an incomplete vagotomy had been done in 6 of the 28 patients in whom a total vagotomy was intended. Postoperative achlorhydria demonstrated by the insulin test is not a reliable proof that vagotomy has been complete. Roentgenologic examination of patients with a total and a selective vagotomy revealed that the ulcer had healed to about the same extent with both procedures and that the acidity was decreased in about 75 per cent of all the patients having either type of vagotomy. Results five and a half to twenty months after the operation revealed recurrences within seven to eleven months, usually in the absence of pain, in about every third patient with ulcer for which total or selective vagotomy was performed. Observations implied that there is a connection between the patient's perception of pain, recurrence of ulcer and the percentage of free hydrochloric acid, so that there must be a certain degree of acidity if the patient is to feel ulcer pain. An increased vulnerability of the mucous membranes after vagotomy was indicated by the recurrence in patients with a high acid ratio. The occurrence of delayed gastric emptying as well as reduced acidity were of a temporary nature in a great number of cases.

Insuloma with Absence of Hypoglycemia—Fries reports a girl aged 15 who slipped and fell on her abdomen. She complained of a severe pain. A laparotomy for suspected hemorrhage revealed torn vessels in a tumor, the size of a fist, which arose from the pancreas. Microscopic studies of the tissue revealed a malignant adenoma with an insuloma like structure. History did not reveal any symptoms of hypoglycemia. The patient was well after a follow-up of three and a half years. Only 2 similar cases were reported in the American literature.

Lyon Chirurgical

45 1-128 (Jan) 1950 Partial Index

Arterial Lesions of Iliacs and Aorta Based on Aortographic Study of 90 Cases. R. Leriche, J. Kunlin and C. Boely—p. 5
Experimental Study on Tissue Reactions Around Nylon Threads Embedded in Connective Tissue. A. Policard and A. Fulleringer—p. 27

*Disease of Oddi's Sphincter. Analysis of 70 New Observations Collected from July 1945 to May 1949. P. Mallet-Guy, J. Feroldi and F. Micke—p. 33

*Prognosis and Treatment of Seminoma of Ovary. Possible Role of Estrus Producing Compounds in Treatments of Seminoma in General. J. Mathieu and M. Plauchu—p. 76

Disease of Oddi's Sphincter—Mallet-Guy and co workers report on 70 cases of disease of Oddi's sphincter the diagnosis of which was established by systematic manometric and roentgenologic control in the course of surgical treatment of the biliary tract. The term disease of Oddi's sphincter has been coined by the authors for a condition characterized by an excessive tonus of the sphincter which may be either functional or associated with a lesion. The excessive tonus of the sphincter was present in 32 patients with biliary lithiasis and in 38 with noncalculous syndrome. In the latter there was either a diffuse state of excessive tonus of the entire biliary tract or an increased tonus of the cystic sphincter and of Oddi's sphincter. Pulmonary tuberculosis, a diverticulum of Vater's region of the duodenum and duodenal ulcers were etiologic factors in some of the cases. Twenty-six biopsies of Oddi's sphincter revealed three types of lesions, i. e., inflammatory lesions of the mucosa alone, lesions due to adenomatosis occasionally associated with cystic dilatation of hyperplastic mucous glands and lesions of the sympathetic nerve cells. Acute lesions were characterized by exudative phenomena or by congestion associated with dense sclerosis. Hyperplasia of the mucosa, epithelial ulceration and fibroblastic proliferation of chorion suggested a sub acute course. Two groups of muscular lesions were observed with a nearly total, massive, waxy degeneration of the smooth muscle fibers in one group and with a progressive replacement of the muscle fibers by connective tissue in the other. The disease of Oddi's sphincter may lead to dilatation of the common bile duct, and later to thickening and inflammation of the wall. The involvement of the sphincter of Oddi may hasten the formation of calculi in cholecystitis, and it may be responsible for lesions of the parenchyma of the liver and of the pancreas.

Seminoma of the Ovary—According to Mathieu and Plauchu tissue from certain ovarian tumors may be superimposed on those from a seminoma of a testicle making it difficult even for the experienced pathologist to decide whether the biopsy was from a male or a female gland. It is for this reason that in France the term seminoma of the ovary was adopted for these ovarian tumors in place of dysgerminoma. The authors report on 83 patients with seminoma of the ovary, 53 of whom are living five years or even longer after surgical intervention. The survival rate, therefore, is 63.8 per cent. Eleven of the 53 patients had one or more recurrences, but roentgentherapy exerted a rapid and permanent effect. Two women became pregnant and delivered at term, and 3 women had several children. Forty-seven of the 61 patients who were operated on and who were alive five years later were between the ages of 15 and 40 years, a survival rate of 77 per cent. Four of 6 patients less than 15 years of age died within a short time after the operation and 8 of 9 patients over 40 survived less than five years. Prognosis, therefore, is unfavorable before puberty and after 40 years of age. The survival period is as a rule short in patients with bilateral tumors. Operative technique and systematic radiotherapy did not exert any decisive effect on the course of the disease. Seminoma of the ovary is a disease of young persons, since 75 per cent of the patients were less than 30 years old. Bilateral ovariectomy with hysterectomy is indicated in patients over 30 years of age. Unilateral ovariectomy is recommended for younger patients, and particularly for those at the approach of puberty, but the operation should be followed by roentgen therapy where the microscopic examination reveals a seminoma, while reoperation with removal of the entire internal genital apparatus is indispensable in cases of atypical epithelioma. A therapeutic trial with estrus producing compounds in large doses seems advisable in female patients less than 15 years old in whom the secretion of the ovarian hormone is not yet abundant, in women over 40 and in men with seminoma of the testicle.

Nederlandsch Tijdschrift v Geneeskunde, Amsterdam

93 4285-4356 (Dec 24) 1949 Partial Index

*Evaluation of Results in Fenestration Operation for Otosclerosis. L. B. W. Jongkees—p. 4290

*Biliary Peritonitis Without Perforation. J. C. Verhage—p. 4298
Chronic Squamous Erythema Annulare. G. G. Jagtman—p. 4305

Results of Fenestration for Otosclerosis—Jongkees discusses the reasons why differences can exist between the subjective and objective results of the fenestration operations. In some cases the hearing improves in the ear that is without operation. The author found this to be the case in 27 of 100 patients one year after the operation. In some of these cases there was no improvement in hearing in the ear with operation. A total improvement of 40 decibels in the zone between frequencies of 500 and 4000 cycles is regarded as the borderline of improvement. In some cases it must be assumed that the bone conduction has also been improved. The hearing capacity has been known to improve more than six months after the operation. Bone conduction paracusis and the progressiveness of the process are factors that must be considered in the fenestration operation.

Biliary Peritonitis Without Perforation—Verhage observed 9 patients in whom bile-stained fluid was found in the abdominal cavity at the time of operation. All patients were women, most of them over 50 years of age. The disorder had an acute onset in most, with severe upper abdominal pain, which radiated to the back and in some to the shoulder. The pain was at times accompanied with vomiting. Some patients had had previous attacks of gallstone colic and others had had digestive disturbances. Six women had an increased diastase content of the urine, and in 5 of these the blood diastase content was likewise increased. In 1 of the women the gallbladder had been removed in 3 it was small and in 5 it appeared distended. No perforation could be found, but in 1 patient an out-sweating of bile could be seen on the surface of the gallbladder, in another the gallbladder and biliary passages were surrounded by an edematous, bile stained infiltration. Others showed biliary

imbibition of the choledochus and of the neck of the gallbladder, and in still others staining of the tissues with bile was noticeable also around the cystic duct. Except for a hepatitis, the liver revealed no changes. Eight of the women had stones in the gallbladder and 1 also in the choledochus. Several women had foci of fat necrosis around the gallbladder. The clinical picture presented by these 9 women was one of biliary peritonitis without perforation. The author stresses the similarity of this picture with acute pancreatitis. The differentiation between these two conditions is difficult because an increase in pancreatic enzymes in the blood and urine and necrosis of fatty tissue in the abdomen may be found in both conditions. Biliary peritonitis requires surgical treatment, whether or not it is accompanied with perforation.

Nordisk Medicin, Stockholm

43 107-154 (Jan 20) 1950 Partial Index

- Supervoltage Roentgen Therapy R B Engelstad—p 107
 *Para Aminosalicic Acid (PAS) in Treatment of Cavernous Pulmonary Tuberculosis. Report on Cases Given Peroral Treatment and Comparison of PAS Effect on Peroral and Transthoracic Intracavitary Application H Difs—p 110
 Frequency of Positive Complement Fixation Tests for Influenza and Cold Agglutination Reaction in Hospital Cases of Pneumonia and Acute Bronchitis M Bjorneboe and K Fagerlund—p 115
 Metal Dust Pneumonitis S G Sjöberg—p 117
 *Pneumothorax Therapy. Late Results from Glittre Sanatorium P Vaksvik—p 123

Paraaminosalicylic Acid in Treatment of Cavernous Pulmonary Tuberculosis—Difs reports 19 cases of cavernous pulmonary tuberculosis, with tubercle bacilli in the sputum and signs of pronounced activity, treated with daily doses of 12 to 18 Gm of granulated paraaminosalicylic acid for one to seven months. There was a favorable response to the agent in 10 patients. No patient became abacillary. The therapeutic effect appeared early in the treatment. The result was probably of a more decided significance in only 2 cases. There was roentgenologically demonstrable regression in 1 case. No appreciable by-effects were seen on the blood-forming organs, kidneys or liver. Extension of the tuberculous process occurred in 2 patients and a complicating pleurisy in 1 case. In 1 instance in which there was an exacerbation in the latter stage of paraaminosalicylic acid therapy given perorally and of streptomycin given intramuscularly, intrathoracic administration of the drugs had a pronounced effect. It may indicate that in the low concentration of the drugs which occurs in tissues containing tubercle bacilli in more advanced cavernous pulmonary tuberculosis, the tuberculostatic action of paraaminosalicylic acid and of streptomycin given orally and intramuscularly, respectively, in current doses is not sufficient to produce any significant effect on the morbid tissues. The effect of the former drug in cavernous pulmonary tuberculosis can probably best be utilized when the agent is combined with some other bacteriostatic agent which attacks the tubercle bacilli in other ways.

Pneumothorax Therapy. Late Results from Glittre Sanatorium—A five to nine year follow-up of 205 patients discharged from Glittre Sanatorium as cured or improved after successful unilateral pneumothorax showed no recurrence and relative well-being in 132 cases, a flare-up in the contralateral lung in 61 and a recurrence in the same lung in 8. Vaksvik says that in pulmonary tuberculosis the untreated lung plays the most important part in the patient's future fate.

Presse Médicale, Paris

58 17-32 (Jan 14) 1950

- Primary Cavities and Bullous Emphysema A Dufourt and J Brun—p 17
 *Nitrogen Mustard Treatment of 18 Cases of Malignant Hemopathies H Tseurenis, A C Thuilliez and B Foussier—p 18

Nitrogen Mustard Treatment of Malignant Blood Diseases—Tseurenis and co-workers treated 12 men and 6 women who had malignant blood disease with methyl-bis (beta-chloroethyl) amine hydrochloride (nitrogen mustard). Four of the patients had myeloid leukemia or lymphoid leukosis, 6 had Hodgkin's disease, 4 had histiocytoblastosarcoma, mediastinal reticular sarcoma or lymphosarcoma and the

remaining 4 had cancerous lymph node metastases. Five milligrams of the drug were dissolved in 20 cc. of isotonic solution of sodium chloride and were injected intravenously immediately afterward, for four consecutive days. Gastrointestinal disturbances manifested by vomiting were observed in all of the patients. The treatment was otherwise well tolerated. The authors agree with Wintrobe that nitrogen mustard therapy is contraindicated in strictly hemopoietic diseases, in chronic leukemias, in acute leukemias and in the terminal stages of Hodgkin's disease. The drug exerts a favorable effect on Hodgkin's disease in its early stages and on generalized or localized sarcomas of tumoral type. Nitrogen mustard seemed to act as an antiinflammatory and analgesic factor in cancer metastasis. Combined treatment with nitrogen mustard and radiotherapy proved to be more effective than separate use of the two methods. Radioresistant tumors became radiosensitive again in patients subjected to treatment with nitrogen mustard. Synergy of the two methods causes a stronger and a more prolonged effect. Spectacular remissions obtained with the larger doses of nitrogen mustard seemed to be of short duration, while small and fractionated doses of the drug obtained less spectacular but prolonged results.

Zentralblatt für Gynäkologie, Leipzig

71 417-528 (No 5) 1949 Partial Index

- Genital Tuberculosis and Pregnancy H Meinrenken—p 418
 *Transfusions, Infusions and Injections into Jugular Vein K H Seidler—p 435
 Interruption of Pregnancy Avoided W Helbing—p 439
 Spontaneous Rupture of Icterus During Labor. Technique of Conservative Operation O Lachmann—p 460
 Extended Indications for Cesarean Section with Penicillin Protection H Tischer—p 465
 Intrauterine Death of Fetus Before Labor in Last Two Months of Pregnancy H Linden—p 476
 Ovarian Pregnancy H Dorr—p 479
 *Penicillin in Therapy of Puerperal Mastitis T K Putz—p 492

Transfusions into Jugular Vein—Seidler describes his experiences with 400 punctures of the superficial jugular vein. This number included 100 punctures for blood transfusions, 140 for infusions of isotonic solutions and 250 for administration of drugs and induction of anesthesia. The puncture of the jugular vein is technically simple. The vein has a large lumen and is readily visible and accessible at the neck. The patient should be reclining, the head should be low and turned to the side. An assistant compresses the vein on one side by means of a short not too soft rubber tube, close to the clavicle. The vein is clearly visible after compression has been continued for 5 to 10 seconds. This vein is still accessible even after a profuse hemorrhage, when the vascular system is poorly filled. Jugular injection is particularly helpful when fluids and drugs have to be administered during operations. Since the majority of gynecologic operations are done with the patient in Trendelenburg's position, the pressure in the jugular vein is great enough so that manual pressure is not necessary. There is the added advantage that injection into the jugular vein simplifies the problem of space at the operating table, in that it does not interfere with either surgeon or anesthetist. Puncture of the jugular vein is indicated whenever the customary approach through the cubital vein is not possible.

Penicillin in Therapy of Puerperal Mastitis—Bacteriologic studies on patients with mastitis and abscess formation convinced Pütz that the pyogenic *Staphylococcus aureus* is usually the primary agent, whereas pseudodiphtheria and enterococcal organisms are usually secondary invaders. He resorted to penicillin therapy in puerperal mastitis on the basis of these bacteriologic observations. In the 20 cases treated with intramuscular injections of penicillin, treatment was continued for 3 to 11 days but most often for 5 or 6 days. Since the supply of penicillin was limited, only patients with extensive lesions were given this treatment. Doses of 20,000 Oxford units were usually injected every four hours. Total doses of 600,000 to 800,000 units were administered. In 2 of 5 patients with bilateral mastitis relapses resulted, because the injections of penicillin had been stopped too soon. Resumption of penicillin therapy led to recovery.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated

The Science and Art of Joint Manipulation Vol I The Extremities. By James Mennell M A M D B C Consulting Physician in Physical Medicine St Thomas's Hospital London Second edition Cloth Price \$7.50 Pp 215 with 290 illustrations The Blakiston Company Division of Doubleday & Company Inc 1012 Walnut St Philadelphia 5 1949

This is the work of a man of great experience in this branch of surgery, built on a sound background of anatomic and kinesiologic premises. In drawing his clinical applications the author follows a policy of caution and conservatism. He has long been convinced, he states, that a great deal of human disability and suffering is amenable to treatment by manipulation, the difficulty lay in formulating this into a concrete science and divesting it of answers and fictions of semiprofessional persons. In this effort he has admirably succeeded.

The book consists of three parts. The general part contains most of the basic movements underlying the whole science of manipulation. The second part is devoted to specific manipulations of the joints of the upper and the third part to the joints of the lower extremity.

It would be impossible to mention even a small portion of the many salient observations contained in this work. There are, however, certain points worth naming because they are not generally known or accepted. The author believes first of all, in the existence of centripetal pain conducting fibers of the sympathetic system and therefore, the presence of true reflex phenomena. Second, he admits the existence of so called subluxation, or the "seizing" of joints, which is not demonstrable in the roentgenogram. In his discussion of the mechanics of the joint, he is in accord with the older classics on kinesiology, such as that by Fick. He discusses the elastic properties of ligamentous structures, the protective reflex contracture of muscles existing in traumatic lesions and preservation and loss of muscle elasticity, with thorough knowledge of the physical properties of these tissues. In making a distinction between the seizing of joints and true bony and cartilaginous lesions he uses some reservations in following Trethowan's slogan, "When in doubt, move." He imparts a great deal of information in the evaluation of the patients' history, such as initial stiffness and secondary loosening or vice versa, in order to establish a more refined differentiation of joint damage.

The author strongly condemns breaking up of adhesions and moving the joints into full ranges because of the reaction of the soft tissues which such procedure would produce, and he maintains the same conservatism with respect to ligamentous strain as he does for joints. He deprecates the jerking of the joint, the thrust and the tug, or any application of brutal force in all articulations. A sprained joint should be given time for the absorption of interarticular fluids, and rest for the joint after manipulation is strongly advised. In other words he seems to follow the teaching of H. O. Thomas. If movement causes pain in the joint remaining for more than half an hour, it is a sign that too much has been attempted.

The second part deals with the specific manipulations of the treatment for the individual joints of the upper extremity. Here also the details given are too numerous even to mention. Attention should be called to the chapter on the movement of the finger and of the metacarpal phalangeal joint, which is particularly well elaborated and which is of such great instructive value in view of the many arthritic deformities one sees established in these articulations. The chapter on the elbow joint is carefully and clearly presented and the author maintains his wholesome and conservative attitude in the treatment of this joint.

Manipulative technic of the shoulder, also largely based on kinetic principles, should be of particular interest to the surgeon who deals so often with periarticular lesions of this joint. The

manipulative movements of the joints are discussed in detail—those which lie within the range of normal motion, voluntary control, as well as those which do not.

In the discussion of the joints of the lower extremity, which is the subject of the third part, one is particularly gratified with the presentation of the balance of the foot and the necessary mechanical support. It is here that "binding" or "seizing" of joint occurs so often, and it is instructive to learn the author's technic of manipulation. Probably greatest interest will center around manipulative treatment of disorders of the knee joint. It is founded on the same basic principles. The pattern of technical procedures is fully explained. He makes the point that full flexion of the knee joint should be secured only if the patella is free throughout the normal range of motion.

Helpful hints are found in his treatment of hip joint disorders, and it is in this joint that he particularly warns against abuse of mobilizing treatment, because of the danger that total manipulation would carry in regard to the neck of the femur and the exacerbation of the pathologic process itself. Some space is given to the treatment following manipulation, particularly massage, and active movements within certain limits, hot baths and proper spacing between rest and movement. Always, the author warns against the danger of overdoing or abusing manipulative treatment. All manipulative procedures are extremely well illustrated.

This book should be practically indispensable to the orthopedic surgeon in his everyday work, and it certainly is a great contribution to the science of manipulative surgery.

One Half the People Doctors and the Crisis of World Health By Charles Morrow Wilson Cloth \$4 Pp 315 William Sloane Associates Inc. 119 W 57th St New York 19 1949

The author begins this book with the premise that more than half of the world is sick, and that the history of man is a history of man's diseases. He states that, according to the death rates, the United States is not the healthiest nation in the world. The death rate, of course, is not the only means of determining the health of a nation. Furthermore, the author apparently has not had access to the latest statistics, which do not bear out his statement; he does not take into account the fact that some of the countries he lists as healthier include only the white population in their statistics or that some nations have a much more homogeneous population than the United States.

The book contains a wealth of information on medical history written in a most interesting and readable manner. The author reviews the health conditions in practically every section of the world, with much space devoted to the medical problems of the tropics. He gives the history of the fights against such prevalent diseases as malaria, yellow fever, typhoid, plague, cholera, the trypanosomiasis and fluke diseases; he relates the careers of many important personages in medicine, such as Walter Reed, Lazear, Carroll, Koch, Pasteur, Carter and Youngblood. The chapter devoted to the Soviet way and health in Europe probably contains more information than is available elsewhere under one cover on the health conditions in Soviet Russia prior to the dropping of the iron curtain in 1945.

A short chapter is devoted to the World Health Organization. This describes its background formation and objectives, the operation of the Interim Commission and the first World Health Assembly. Throughout the book the author draws attention to the close relationship existing between food supply, nutrition and health. In his final chapter he states, "without food there is no health and without health there is not enough food. In an early chapter there is a scathing denouncement of nostrums and other pseudomedical frauds so prevalent in the

United States. The facts and statements he makes should be iterated and reiterated.

The author discusses health insurance with particular reference to the United States. He outlines the formation and the actions of the National Health Assembly of 1948 and the provisions of the so-called National Health Bill of 1947 (Wagner-Murray-Dingell Bill). There follows a fair summary of the arguments of the proponents and the opponents of compulsory health insurance in this country. He does not analyze these arguments but near the end of the book it becomes apparent that he is in favor of the adoption of socialized medicine. He states that it is coming but believes that whether or not it is socialistic is not a point worthy of argument.

He admits, however, that our medical profession is the strongest in the world, our medical schools, research facilities and over-all resources the best in the world. He calls for drastic measures to remove abuses in "patent" medicines and similar devices. Compulsory health insurance usually has increased the last-mentioned abuses and certainly has never raised the level of the medical profession or improved medical education. It is unfortunate that the author has given the nod to one side of the controversy without proving his point. The author's own point, so well made, about the relationship between food and health, when viewed in the light of what has happened and is happening in socialist countries, should not permit his cavalierly shrugging off the matter of socialism in relation to compulsory health insurance.

The author has given a most able discussion of the aspects of health in the world. Health has certainly become an international problem. It is believed that the World Health Organization and the World Medical Association (which he does not mention), working in collaboration, can be effective agencies in solving the problem.

Hospitalization of the People of Two Counties. A Study of the Experience in Hillsdale and Branch Counties, Michigan, 1940-1945. By Nathan Sinai, Dr. P.H. and Dorothy Elizabeth Paton, A.B. Bureau of Public Health Economics Research Series No. 6. Paper. Pp. 91. School of Public Health, University of Michigan, Ann Arbor, Michigan, 1949.

The stated purpose of this study by the University of Michigan School of Public Health was to investigate the utilization of hospitals in a rural area—in this case two adjoining counties in southern Michigan—and to determine the effects, on that utilization, of Blue Cross enrolment. The authors of the study also hoped to be able to observe some of the effects of the improving economy during the war years on the demands for and the uses of hospital facilities by the people living in the two small cities and those in the villages and on the farms.

A voluminous set of statistical tables, both in the text and in the appendix, presents a detailed analysis of population characteristics: the number and rate of hospitalizations by age, sex, and disease; the annual number of days of hospitalization and days per illness by age, sex, and disease; the number of in-county and out-county hospitalizations; the costs per day of hospitalization per sex and per 1,000 population; and the sources of payment of hospital bills.

Most of the text is direct presentation of the factual data—few broad conclusions are reached. The authors reluctantly concede that the evidence obtained is not sufficiently strong to warrant specific recommendations. Most of the data merely support ideas already current in rural health literature. It may be interesting to compare the experience of these two counties, Hillsdale and Branch, with other data on hospitalization, for example with Saskatchewan's compulsory hospitalization experience.

The limited findings on the effect of a Blue Cross enrolment drive on rates, types of and payments for hospitalization may be helpful for starting discussion but, as the authors state, the figures obtainable for Blue Cross subscribers were not adequately broken down by number, age, sex, and place of residence to allow any actuarial comparisons between the covered population and the population as a whole. Thus, unfortunately, this study is not particularly useful for planning the future coverage of rural populations by voluntary insurance.

Therapeutische Technik für die Ärztliche Praxis. Herausgegeben von Prof. Karl Hansen. Unter Mitarbeit von Doz. Dr. H. Brodersen et al. Second edition. Cloth. 70.50 marks. Pp. 1076 with 720 illustrations. Georg Thieme, Diemershaldenstrasse 47 (144) Stuttgart O. Agents: U.S.A. Grune & Stratton, Inc. 381 4th Ave. New York 16, 1949.

"Therapeutic Technic for Medical Practice" is encyclopedic; various authors cover many procedures in different branches of medicine with special emphasis on orthopedic and general surgery. The book is written for the German medical practitioner to reacquaint him with the simple maneuvers of daily practice and also to give him an opportunity to study selected procedures. The material covering all specialties is impressive. However, the book shows clearly that the progress of German medicine has been severely retarded by the events of the past seventeen years. Despite detailed descriptions of various technical procedures such as skin grafting, abdominal surgery, and orthopedic measures, little is said about preoperative and post-operative treatment. In the description of complications following abdominal surgery no mention is made of gastric and intestinal intubation. According to this author, heparin and dicumarol are seldom used for the prevention or treatment of embolic phenomena, and one questions the validity of his suggestion that in postoperative pneumonia a proprietary quinine preparation still holds equal rank with penicillin and the sulfonamide drugs. The discussion of fluid balance is hazy; for instance, the author advises that 20 to 60 cc of isotonic sodium chloride solution be given intravenously every four hours in dynamic ileus. The rather crude technic which is described for indirect transfusion of blood suggests the use of an open glass container covered with sterile gauze for a filter.

Therapeutic procedures in internal medicine are well covered. There is a useful chapter on artificial pneumothorax and other procedures for pulmonary tuberculosis. A great amount of space has been given to a chapter dealing with massage, therapeutic exercises and different forms of physical therapy.

Many new medical achievements have not yet been recorded in German medical literature. The author, writing on anti-syphilitic treatment, devotes only a small paragraph to the use of penicillin. He uses 300,000 units daily for seven days, and in his opinion penicillin therapy has been a failure. Therefore, he emphasizes the use of heavy metals, including the old type of mercurial injections. The book advocates many medical procedures and medicaments which have been largely replaced by sounder practices and more specific drugs. For example, mention of blood letting in the form of cupping or using leeches will still be found on one of the pages.

Despite its shortcomings the book represents an earnest attempt to restore German medicine to a higher level and to inform its practicing members of the medical achievements with which they could not keep abreast during the past turbulent years. The book is not recommended for individual purchase but could be included in reference libraries.

Aviation Medicine: Its Theory and Application. By Kenneth C. Bergin, M.A., M.D., D.P.H. Cloth. \$7. Pp. 447 with 136 illustrations. The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1949.

This volume is intended for the physician who desires a reference book on the current practice and recent advances in aviation medicine in order to advise properly those of his patients who travel frequently by air or contemplate doing so. Likewise, it contains a great amount of information which would appeal to nonmedical personnel interested in commercial aviation or employed in the aeronautical industry. Flight surgeons and other workers in aviation medicine generally will be familiar with the material presented.

The book is arranged in five parts: an introduction, physiologic, medical and psychologic considerations and preventive health. The medical aspects of commercial and military flying are often intermingled, and, occasionally, undue emphasis is given subjects, as in the allotment of three chapters to "aircrew neurosis" while "explosive decompression" is dismissed in one chapter of seven pages. There is no apparent reason for introducing such terms as "otic barotrauma" and

"sinus barotrauma," presumably in place of aero otitis and aeroinfinitis, which are more commonly used in this country, nor in including a discussion of the treatment of burns and other injuries which does not differ in flying and nonflying personnel.

A valuable table of "Medical Contraindications to Air Travel" is included which outlines the limitations and dangers of flying in the presence of various diseases. There is also an intelligent discussion in the chapter "Epidemiology and Air Travel," which outlines the role of the airplane in international public health and describes the measures which have been instituted to prevent the spread of endemic diseases to other countries. Epidemiologic maps and international immunization data are also given. Though the physical examination for pilot and other aircrew personnel is not discussed at length in the text, the appendix includes the medical standards and physical requirements adopted by the International Civil Aviation Organization. The volume is attractively printed and contains numerous photographs and other illustrations. An ample bibliography is given at the end of each chapter, but the names of several of the authors cited were misspelled.

A Psychiatric Approach to the Treatment of Promiscuity By Benno Safer M.D. Hazle G. Corrigan Eleanor J. Feln and Katherine P. Bradway Ph.D. Foreword by William F. Snow M.D. A Further Report of a Psychiatric Study Made under the Auspices of the Venereal Disease Division, United States Public Health Service, the California State Department of Public Health and the San Francisco Department of Public Health, January 1943 to July 1947. Psychiatric Service, San Francisco City Clinic and County of San Francisco Department of Public Health. J. C. Gelger M.D. Director of Public Health. Richard A. Koch M.D. Chief of Division of Venereal Diseases, San Francisco. Paper Price 75 cents. Pp. 82. American Social Hygiene Association 1790 Broadway New York 10 1949.

This publication comprises a report of a psychiatric study made under the auspices of the Venereal Disease Division, United States Public Health Service, the California State Department of Public Health and the San Francisco Department of Public Health from January 1943 to July 1947, and it is a continuation of a similar wartime study reported on in 1945.

A psychiatric service was operated in direct connection with a venereal disease clinic, 365 women and 255 men patients are included in this research study. The chief objectives were to determine causes of promiscuity and the effectiveness of psychiatric and case work treatment in combating it. Attendance at the service was voluntary, and treatment was individualized.

Although no single factor or group of factors was found to determine or exclude promiscuity, unsatisfactory familial relationships, neurotic conflict and current environmental factors appeared to have direct relationship. Patients who availed themselves of the psychiatric service appeared to benefit and follow up on those who utilized long time intensive treatment revealed dramatic improvement in most cases, promiscuity being reduced, modified or eliminated.

This report should be of particular use and information to those interested in public health and social work, psychiatry and psychology. It correlates the medical, social and moral aspects of the problem and constitutes a comprehensive, realistic and straightforward approach to venereal disease control.

Familjær Hypercholesterolemí og Xanthomatose Kliniske og konstitutionstypologiske Studier over Serumets Indhold af Cholesterol Totalt og Lipidofor hos Normale og hos Familier med Xanthomatose [By] Valdemar Kørnerup [Familial Hypercholesterolemia and Xanthomatosis. Clinical Constitutional Typologic Studies on Cholesterol Total Fat and Lipid Phosphorus Content of Serum of Normal Persons and of Families with Xanthomatosis] With an English Summary. Denne afhandling er af det lægevidenskabelige Fakultet ved Københavns Universitet antaget til offentlig at forsvares for den medicinske Doktorgrad 1948. Paper Pp. 211 with illustrations. Konrad Jørgensen's Bogtrykkeri Kolding Denmark 1948.

The author describes the syndrome of familial hypercholesteremic xanthomatosis, which was first described by Thannhauser and Magendanz (1938) and at about the same time by Carl Mueller. He gives an excellent clinical discussion and family trees of patients with this disease, from which it is evident that the different clinical features may occur in monosymptomatic or polysymptomatic form. The book is written in Danish with an English summary of five pages.

Diagnosis and Treatment of Brain Tumors and Care of the Neurosurgical Patient. By Ernest Sachs A.B. M.D. Research Associate in Physiology Yale University New Haven Conn. Second edition. Cloth \$15 Pp. 552 with 358 illustrations. The C. V. Mosby Company 3207 Washington Blvd. St. Louis 3 1949.

This book is a complete current revision and second edition of two of the author's previous works, namely, "The Diagnosis and Treatment of Brain Tumors" and "The Care of the Neurosurgical Patient Before, During and After Operation."

Although the main subject of this book is brain tumors, the author includes brief discussions on the treatment of several other conditions, such as tumors of the spinal cord herniated intervertebral disks and injuries to peripheral nerves. The first chapter is devoted to those aspects of surgical anatomy and physiology of the brain which are of value in making a localizing diagnosis. In the succeeding six chapters the methods of examination and the clinical evaluation of signs and symptoms presented by patients who have brain tumors are considered from the standpoint of their value in enabling the neurosurgeon to arrive at a precise diagnosis.

In the chapter on the surgical pathology of brain tumors the author has divided these lesions into four groups: (1) tumors arising from the envelopes of the brain and cranial nerves, (2) tumors arising from the various cells which make up the brain structure, (3) inflammatory lesions and (4) pituitary tumors. Although this classification is somewhat arbitrary and not all inclusive, it serves as a satisfactory framework on which the reader can build his study of brain tumors.

Dr. Sachs, as a student, had a most interesting career. He was associated with such outstanding men as Osler, Halsted, Horsley and Cushing, and his work as a pioneer in the field of neurosurgery in this country has been exceedingly fruitful and productive. Anyone interested in neurosurgery will find his book an interesting, sound, practical guide to the diagnosis and management of brain tumors.

Clinical Diagnosis by Laboratory Examinations By John A. Kolmer M.S. M.D. Dr. P.H. Professor of Medicine in the School of Medicine and the School of Dentistry of Temple University Philadelphia. Second edition. Cloth \$12 Pp. 1212 with 93 illustrations. Appleton-Century-Crofts Inc. 35 W. 32nd St. New York 1 1949.

The wealth of material contained in this volume makes it a valuable reference work for physicians and medical students. It fulfills an important function in the interpretation and evaluation of the laboratory procedures which are an essential aspect of modern medical practice. The book should aid in defining the indications and limitations of many tests which are not sufficiently well understood by those who order and employ them. Such a reference work is especially desirable because of the rapid increase in the number of special procedures which because of their complexity and profusion, tax the memory of and are bewildering to students.

Part one of the text offers a clinical interpretation of laboratory examinations and contains much worth while information concerning diagnostic aids. The second part deals with the practical applications of laboratory examinations in clinical diagnosis. The value of the capsule descriptions of the many diseases in this section is open to question. There is also much duplication of material already discussed in the first part. The last part of the book is valuable and practical. It gives techniques of laboratory examinations and embodies methods for performing many of the simpler types of examinations. The entire text is liberally interspersed with summary tables which many will find helpful. The sections on serologic examinations are particularly authoritative and thorough.

A more complete revision for the second edition would have been desirable. Current trends and advances in medicine demand more adequate treatment of such subjects as acid base balance. In conformity with present practice the use and description of milliequivalents in terminology would have been preferable. The sections on tests of endocrine, cardiac and pulmonary function would have benefited by greater revision reflecting recent advances. Some of the material is obsolete by present standards.

Although there is a discussion of the different types of heart disease no mention is made of such tests of cardiac function

as the venous pressure and the circulation times. Other omissions are the Kveim reaction, the Coombs' test, the benzodioxan test and the histamine test for pheochromocytoma, the insulin test of gastric function, the mecholyl stimulation test of pancreatic function, the Papanicolaou smear technic, the Kepler water excretion test, the effect of pituitary adrenocorticotrophic hormone (ACTH) on the eosinophils and the uric acid-creatinine ratio for the evaluation of adrenal function. The sections on bilirubin metabolism are confusing and not consistent. Misprints such as "leutic" for luetic on page 901 and "Keith-Fleck" for Keith-Flack on page 617, which also occurred in the first edition, "hyperphosphatemia" for hyperphosphatasemia on page 956 and "urobilinogen" for bilirubin on page 774 should be corrected.

Although the volume does not entirely fulfil the prospectus in the preface that it is "strictly up to date," it is an important book which will be of considerable aid to physicians and medical students.

Fractures and Dislocations in General Practice By John Hosford M.S. F.R.C.S., Surgeon to St Bartholomew's Hospital London. Second edition by W. D. Coltart, M.B., B.S., F.R.C.S., Assistant Orthopaedic Surgeon to St Bartholomew's Hospital. Cloth \$5. Pp. 290 with 87 illustrations. Paul B. Hoeber, Inc. Medical Book Department of Harper & Brothers, 49 E. 33rd St., New York 16, 90 Great Russell St. London W.C.1, 1950.

The first edition of this book appeared in 1939. It was designed to give more practical help in fracture work to the general practitioner and the undergraduate. It has been a valuable book in that it has filled in a gap between the textbook of general surgery and the large complete works for the specialist or reference use. This edition brings this valuable work up to date, as it includes the important contributions of the past decade. A fine feature of this work is the adequate stress which has been given to general considerations and principles as well as organization of personnel. There is sufficient detail in the technic of anesthesia and reduction and plaster preparation and application to make this work well appreciated by the general man in this field.

The authors have not confused the picture by discussing all the various methods available for treating a certain type of fracture but have limited themselves to one or two methods, which, in their experience at St Bartholomew's Hospital, have given the most satisfactory results. They have wisely remained conservative in the matter of open reduction and internal fixation and other more complicated procedures which tend to be handled more by the specialist.

The individual fractures and dislocations are adequately described as to their usual etiology, mechanism, means of reduction and fixation. The detail of advice for handling all the way through the problem is sufficient for the ordinary case. A gratifying feature of this small book is the reference to the men who have had great influence in this field. A short history of five of the men who gave fine early descriptions of certain fractures is included. This book has met a real need and should continue to be of help to the busy practitioner and the overburdened medical student.

Colicistitis crónicas no calculosas Primera Jornada panamericana de gastroenterología (18 al 20 de julio de 1948) Buenos Aires. Paper. Pp. 729, with illustrations. La Prensa médica argentina, Junín 345, Buenos Aires, 1949.

This book presents a collection of papers by prominent gastroenterologists in South America, North America, Spain and France. The papers cover all phases of chronic noncalculous cholecystitis. It is the result of the first Pan-American Congress of Gastroenterology, which took place in Buenos Aires in July, 1948.

The subject was covered minutely, each man attending the meeting presented a paper concerning his own particular field of interest. For this reason the book is of practical value to the gastroenterologist, the internist, the general or abdominal surgeon and the general practitioner.

Although the book does not report anything new in the field of diagnosis or treatment of this disease, it offers an excellent exposition of all the procedures available. It is written in Spanish but has some resumes in English. It is printed on good quality paper, the type is large, clear and easy to read, the illustrations are numerous and of good quality.

Psychological Aspects of Clinical Medicine By Stephen Barton Hall M.D., D.P.M., Honorary Psychiatrist Liverpool Royal Infirmary. Liverpool. Cloth. 21s. Pp. 416. H. K. Lewis & Co. Ltd. 13b. Cover St. London W.C.1. 1949.

The material of this book was presented as a course of clinical lectures for the final year and postgraduate students at the Liverpool Medical School. By approaching psychological symptoms as an integral part of general medicine rather than as a special and separate subject it was hoped to restore psychiatry to its rightful place in medicine as a whole. The further purpose of these lectures was not to replace the systematic instruction in psychiatry at this school but to complement such teachings.

It thus became necessary to present the entire field of psychiatry in one course. This is covered in the eleven chapters of the book, which meets its announced purpose. As a textbook however, it does not have balance in the presentation of subject material from the standpoint of either emphasis or content. As a supplement for a special school course it is entirely satisfactory, but one reading the book for its own specific content will find much lacking. Gaps appear in the material, some of the descriptions are sketchy, and sequences are often strange. Chapter 5, on "Common Forms of the Neurosis" is followed by "Psychological Symptoms and Physical Disease," which in turn is followed by a chapter on "Psychosomatic Relationships." Next comes chapter 8, "Abnormal Behavior as a Symptom of Disease." Under this latter heading are classified such major disturbances as the amementias, dementias, epilepsy, brain tumors and senile states. The section title is misleading.

One must read the context closely to see the author's purpose in such classifications and one must also be oriented in the field of psychiatry or at least be getting collateral courses, as do the students at the Liverpool Medical School, to appreciate the principles elucidated. To those already indoctrinated the lessons are clear, but to the new reader the facts as presented may be a bit confusing. Certainly the content is there, the descriptions and conclusions are accurate, but in avoiding a "systematic and fact-giving style" and in using an essay type of description for the sake of "coherence, sequence and interconnection" (as the author states in the preface), he has actually lost clarity of presentation. With slight reorganization and perhaps renaming of section headings this book could be a real contribution to the field.

Union Internationale thérapeutique, Journées thérapeutiques de Paris 1948. Le curare, les artérites des membres. Sous la présidence du professeur Loeper et du professeur Harvier. Secrétaire général: Professeur André Lemaire. Paper. 1400 francs. Pp. 312, with illustrations. G. Dolin & Cie. Éditeurs, 8 Place de l'Odéon Paris 6^e, 1949.

This volume of the *Paris Journal of Therapeutics* contains two symposiums. The first, on curare, occupies about half the issue, and the second concerns arteritis of the extremities. The section on curare consists of 10 articles contributed by 15 writers, who discuss the history, chemistry, pharmacology and physiology, bioassay and the various clinical uses of curare in the fields of anesthesiology, neurology, obstetrics and gynecology and surgery. It is a rather common failing of symposiums to contain a certain amount of duplication, this is true here. The commendable bibliographies appended to each of the chapters on curare are unfortunately marred by the proofreading, which shows inattention to detail. There are some notable omissions, for example, the discussion of the synthetic substitutes for curare makes no mention of decamethonium bromide (C_{10}). The 14 articles on arteritis are contributed by 27 authors or co-authors, who discuss surgery, arteriophlebography, intra-arterial injections, infectious causes of arteritis, the use of nicotinic acid derivatives, physical therapy and other forms of therapeutics utilized in France for this condition. Mention of the use of pentamidine (British Pharmaceutical Codex), originally introduced as trypanocide, as a chemotherapeutic agent for the treatment of chronic leg ulcers will arouse interest but it will also be recalled that this compound proved toxic when previously used in sleeping sickness. The reader will notice with surprise and probably a little skepticism the report on hemocriotherapy in the treatment of hypertension and spasm of the renal vessels. It describes the use of intramuscular injections of the patient's own blood mixed with ovarian

extracts (In the diabetic patient, these injections are accompanied with injections of "pancreatic extract") However, he will find himself in complete agreement with the statement concerning the use of certain antiseptics for intra arterial injection, "la mercurochrome a deja une certaine anciennete" He may possibly wonder, "Pourquoi de ça?"

Tuberculosis in History from the 17th Century to Our Own Times. By Prof S Lyle Cummins C.B. C.M.G. M.D. With an Introduction by Sir Arthur Salusbury MacNalty K.C.B. M.D. F.R.C.P. Cloth Price \$4.50 Pp 205 with 12 illustrations Williams & Wilkins Company Mt Royal & Cullford Aves., Baltimore 2 1949

This book contains sketches of the contributions of various older workers on tuberculosis to present knowledge of the disease. The title is misleading, as one might suppose from it that the text would deal with the influence of tuberculosis on history. The author was formerly professor of tuberculosis at the Welsh National School of Medicine. Certain of the chapters were originally read before the Section of the History of Medicine of the Royal Society of Medicine. Part I is devoted to the British school of phthisiologists from Christopher Bennet (1617-1655) through William Budd (1811-1880).

Part II describes the work of the early Continental phthisiologists from Leopold Anenbrugger (1722-1809) to Jean Antoine Villemin (1827-1892). Part III contains sketches of the life and contributions of Trudeau and Koch. The author gives credit to men who have not been generally recognized as pioneers in this field. James Carson (1772-1843) is given credit for the first therapeutic pneumothorax, George Bodington (1799-1882) for the first sanatorium and William Budd (1811-1880) for suggesting that tuberculosis was a communicable disease.

This book is recommended primarily for students of medical history, although physicians specializing in thoracic disease undoubtedly will find some portions of the book of interest.

Dermatologie. Von J. Darier, A. Civatte und A. Tzanck. Mit einem Vorwort von Dr. med. Paul Robert, o. Prof. der Dermatologie und Direktor der dermat. Univ. Klinik Bern. VI. Band. Sammlung medizinischer Lehr- und Handbücher für Ärzte und Studierende. Deutsche Übersetzung der 5. Auflage der Originalausgabe von Dr. med. Eva Schwarz [Titel der Originalausgabe: Précis de dermatologie. Masson & Cie Paris.] Cloth Price 90 Swiss francs Pp 922 with 269 illustrations. Hans Huber Marktgasse 9 Bern 16 distributors for USA and Canada Grune & Stratton Inc 381 4th Ave New York 16 1949

The original fifth edition of *Precis de Dermatologie* by Darier, Civatte and Tzanck was reviewed in THE JOURNAL May 28, 1948, page 420. The format of the present edition differs in that the pages are much larger and therefore reduced in number from 1,145 in the French edition to 906 in the German translation, thus making the German edition less unwieldy than is the small but thick French edition.

A translation by Dr. Eva Schwarz is excellent. In a foreword, Prof. P. Robert of the Universitätsklinik of Bern says that the first German translation was made in 1913 by Dr. Jadassohn and that the second German translation was made in 1936 by Herrn Dozent K. H. Vohwinkel in Tübingen.

The volume is well bound and printed on excellent paper and the illustrations are all of the same size and same excellence as in the French edition. The publishers and the translators are to be congratulated on the quality of this work.

The Conduct of Life Insurance Examinations. By E. M. Brockbank M.B.E. M.D. F.R.C.P. Honorary Consulting Physician the Royal Infirmary Manchester England. The General Practice Series. Third edition. Cloth. 12s 6d. Pp 176. H. K. Lewis & Co. Ltd. 136 Gower St. London W.C.1 1949.

The printing of a new edition within such a short time after the publication of the preceding edition attests to the popularity of this series among those who are interested in life insurance and industrial physical examinations. Although the author is British and the book is written primarily for British readers, it will be of interest to American physicians who serve as medical examiners for life insurance companies. The author draws from an extensive experience in insurance examinations and in physical examinations required by some employers. Many corporations now require medical certification of certain employees, especially those who are chosen for responsible positions in foreign offices.

The first of the two main sections deals with the conduct of a physical examination and the attendant reports to be made to those who requested it. The second section is devoted to "impaired lives" and contains several tables such as life expectation at various ages, approximate extra mortality due to abnormal blood pressure, deaths from tuberculosis and deaths due to respiratory cancer. Some of the tables show statistics by age and sex. Important revisions and additions have been made to sections dealing with blood pressure, glycosuria and bronchial cancer. A well organized table of contents lists each chapter. The book also contains an index of subjects and a brief list of references.

Mouth Cancer and the Dentist. By Hayes Martin M.D. Attending Surgeon Memorial Hospital New York. A Monograph for the Practicing Dentist. Paper Pp 63 with illustrations. American Cancer Society Inc 47 Beaver St New York 4 1949.

This pamphlet is a timely, well prepared publication directed to the practicing dentist. It is essentially a plea for more careful diagnostic study of oral lesions with a poignant reminder of the dentist's responsibility in the problem of early cancer diagnosis. The monograph covers such aspects of the cancer problem as the symptoms of cancer of the mouth, differential diagnosis, causations, methods of therapy and the role of the dentist in the treatment of cancer of the mouth. It is written in a clear, direct style without technical details or extended descriptions. The illustrations, 24 in colors and 4 in black and white, are well selected and of excellent quality.

The 1949 Year Book of Medicine (July 1948-May 1949). Edited by Paul B. Beeson M.D. and others. Cloth \$4.50 Pp 831 with 139 illustrations. The Year Book Publishers Inc 200 E. Illinois St. Chicago 11 1949.

The principal justification for a review of the literature is the lucid and critical analysis of important developments in a particular field thus circumventing the impossible task of 'keeping up with the literature.' This book meets this objective admirably. As in the past, the volume is divided into five chapters: Infections, chest, blood and blood-forming organs and the kidney, heart and blood vessels and digestive system. The editors of these sections are outstanding authorities. The subject matter encompasses more than 500 articles published from July 1948 to May 1949 and is well integrated. The liberal use of illustrations and charts from the original papers adds greatly to the clarity of presentation. The frequent editorial comments are especially helpful in evaluation of the significance of a particular work and in maintenance of proper perspective. The text is easily readable, a subject index further enhances the usefulness of the review. This book is recommended for interval reading both to the general practitioner and the specialist as a key to information on current developments in the field of internal medicine.

Unipolar Lead Electrocardiography Including Standard Leads Augmented Unipolar Extremity Leads and Multiple Unipolar Precordial Leads and a Section on Cardiac Arrhythmias. By Emanuel Goldberger B.S. M.D. Adjunct Physician Montefiore Hospital New York. Second edition. Cloth \$7.50 Pp 392 with 221 illustrations. Lea & Febiger 600 S. Washington Sq., Philadelphia 6 1949.

Dr. Goldberger's practically new book is now more than twice as large as the first edition, although its title would lead one to think that it is limited to the subject of unipolar electrocardiography, the book touches on the entire field of electrocardiography. Much new material has been added particularly an entire section on abnormal cardiac rhythms.

The author is preeminently qualified to discuss this particular field, in which he has been a leading investigator. Unipolar electrocardiography has become vital in the diagnosis of various cardiac conditions, especially myocardial infarction. This subject is taken up clearly, the simple fundamental principles of physics and physiology are followed with many illustrations from actual cases. The electrocardiograms are fairly clear and the explanations in the text are comprehensible. A complete bibliography adds considerably to the value of the book for reference purposes. The reader will welcome the appendix in which a series of general hints and observations are enumerated to guide one in *electrocardiographic interpretations*. This book can be highly recommended and will prove valuable to anyone who is doing electrocardiographic work.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

AMENORRHEA

To the Editor—A 20 year old white girl, who has never been pregnant, complains of amenorrhea. Menarche occurred at age 14, and periods lasted four to five days, flow was moderate, requiring 4 to 5 pads per day, and dysmenorrhea was never present. Since November 1948, shortly after marriage, this patient has not had a menstrual period. Her health has been good. She wishes to become pregnant. Physical examination shows a normal introitus and vagina, clean cervix and open os. The uterus appears small, forward and nontender. The adnexa appear to be normal. There is no discharge. In 1948 an osteopath gave the patient thyroid and "shots," after which she had a one day period of vaginal bleeding. In May 1949 I prescribed $\frac{1}{2}$ grain (0.03 Gm) thyroid daily and diethylstilbestrol dipropionate, 1 mg daily for 5 days, then 2 mg daily for ten days and an interval of 10 days without diethylstilbestrol. The cycle is then repeated. Although she has been treated for eight months, she has failed to have a menstrual period. What treatment is suggested?

M D, Michigan

ANSWER—It is assumed that this patient had a thorough physical examination, but there is no mention of basal metabolism studies. These are essential, if the patient has a low basal rate, thyroid medication can bring back the menses.

In many cases of amenorrhea, periodic bleeding can be induced with hormones. Generally, however, this is a waste of time and money, because little is to be gained except the psychic effect of seeing blood. One can induce bleeding in amenorrheic women by giving estrogen alone or better still by giving estrogen and then progesterone. Since this is purely substitutional therapy and usually has to be repeated as often as a bloody flow is desired, it is rarely indicated. Amenorrheic women who are not anxious to have babies should be told that they are as healthy as women who do menstruate and therefore do not need treatment.

A simple method of treating amenorrhea which was recommended by Zondek follows:

In secondary amenorrhea, 10 mg of progesterone is given intragluteally daily for five days, making a total of 50 mg. One may shorten the duration of treatment to two days by giving 25 mg daily. A further shortening is undesirable. If economy is required, estrogens must be added. Zondek found that it is best to inject a total of 25 mg of progesterone and 2.5 to 5 mg of estradiol benzoate in two days. This is possible only in women with amenorrhea of less than two years' duration. Secondary amenorrhea of longer duration requires 50 mg of progesterone. The interval between the last injection and the commencement of menstruation varies from 72 to 120 hours.

Amenorrheic women who want to have children should be treated even though the outlook is not bright. First, however, by means of biweekly biopsies the physician should discover whether a woman ovulates. One determines this by observing whether a pro gravid endometrium is ever present. An additional useful aid is the recording of the basal body temperatures. This may indicate not only whether or not ovulation occurs but also the exact day an ovum is present. If a woman does produce ova there is nothing to gain by trying to induce bleeding. If, however, successive biweekly biopsies reveal only follicular or atrophic endometrium, it may be advisable to try to induce ovulation with mare's serum gonadotropin alone or combined with pituitary preparations. However, this form of therapy is still experimental and should be used only by a specialist, because some dangers are involved.

In women who do not ovulate and who also have a low basal metabolism, thyroid extract will yield far better results than any other hormone. However, when the basal metabolism is normal, thyroid is only occasionally successful in producing ovulation. The production of ova can be stimulated by roentgen irradiation of the pituitary and ovaries. Many amenorrheic women so treated menstruate and also bear children. This form of therapy must be carried out only by an experienced roentgenologist. There is a theoretic possibility that the offspring in the third and fourth generation may not be normal.

EOSINOPHILIA

To the Editor—The answer to the query on eosinophilia in *The Journal* Dec 3, 1949, p 1034, contains the statement "In general, eosinophilia is not present unless the eosinophil count is greater than 6 per cent or the total number more than 600 per cubic millimeter." As some authorities state that the maximum percentage is 3 to 4 per cent and the maximum absolute number 300 to 350, I should like to know whether any new discovery has modified these figures.

H. Hinglais, M.D., Paris, France

ANSWER—The value "greater than 6 per cent" referred to was based on data derived from actual hematologic determinations on a series of 511 persons, of whom 269 were healthy adults in the age group 19 to 30 years, 87 were healthy boys and girls between the ages of 15 and 18 years and 155 were healthy children, from 8 to 14 years of age. Statistical analysis of these data indicates that 26 out of the 511 subjects in this series, or about 1 in 20 healthy persons, have eosinophil counts over 6 per cent and that about 1 in 20 healthy children has an eosinophil count over 8 per cent, when at least 200 cells are counted. Actually, 107 of the 511 subjects, or almost 21 per cent, had eosinophil counts of 4 per cent or over.

When one is interested primarily in eosinophilia, it is good practice to count at least 20 eosinophils in a subsequent count and determine the percentage on this basis, if the original routine differential count was between 4 and 10 per cent for eosinophils. For the most accurate eosinophil count, the technique of Thorn and his co-workers (Thorn, G. W., Forsham, P. H., Prunty, F. T. G., and Hills, A. G. A Test for Adrenal Cortical Insufficiency. The Response of Pituitary Adrenocorticotrophic Hormone, *J. A. M. A.* 137:1005 [July 17] 1948), or its more recent modification by Randolph (Randolph, T. G. Differentiation and Enumeration of Eosinophils in the Counting Chamber with a Glycol Stain. A Valuable Technique in Appraising ACTH Dosage, *J. Lab. & Clin. Med.* 34:1696 [Dec.] 1949) should be used and 100 to 400 eosinophils should be counted. For all clinical laboratory procedures, the ideal method for interpreting future results is to determine first the normals on strictly healthy persons—not outpatient clinic or hospital patients—using the particular methods to be used in and personnel who will be doing the determinations and regarding the normal range as one which will include plus or minus 2 standard deviations, or 95 per cent of the results in the particular age and sex group being investigated.

NOCTURNAL CRAMPS AND VOMITING OF PREGNANCY

To the Editor—I would appreciate suggestions as to proper and inexpensive treatment of (1) nocturnal leg cramps and (2) nausea and vomiting (a) the ordinary type that occurs only up to about the twelfth week and (b) the type that continues through pregnancy.

Louis F. Burkley, M.D., Easton, Pa.

ANSWER—The cause of nocturnal leg cramps has never been fully explained, but some believe it is due to a local calcium deficiency. This is probably caused by venous stasis due either to lowering of the blood pressure at night or to inadequate venous return. In any event, even if the patient is taking calcium and cod liver oil, the addition of 30 drops of percomorph liver oil (preferably the natural oils) often relieves it in one to three days. After relief is obtained the dose is decreased to 5 drops daily until the medication is stopped. Return of cramps is indication for repeating medication.

In regard to early nausea with or without vomiting some obstetricians insist on a high protein diet (almost 2 Gm per kilogram of body weight). The patient eats three meals a day even if she vomits occasionally. The patient should keep active (a full time or part time job is helpful in keeping the patient's mind off her troubles). The physician should spend considerable time with patients in explaining various phases and changes due to pregnancy and, above all, in trying to relieve their fears and anxiety.

In some a large glass of hot water with a few drops of lemon juice taken the first thing on arising will help relieve the nausea.

although it occasionally will make the patient vomit, if it does, the patient will feel better afterward. This also helps relieve the constipation of pregnancy. The type of nausea caused by regurgitation of bile is most often relieved by this method. Dramamine® may be used with success in severe cases. The various combinations of vitamin B sometimes help.

Probably the most common cause of the nausea is the rapid rise of hormone levels during early pregnancy. In some of the severer types, someone else's preparing the food helps because the smell of food aggravates the patient's condition. Mild sedatives may help in the severe type. If the condition persists, the chloride balance must be watched carefully because a patient can lose a great deal of chloride from the stomach.

The usual craving for certain foods is minimized if the patient is on a high protein low-fat diet. Fatty foods, particularly fried fats, frequently cause vomiting in pregnant patients. Large amounts of rough foods should be avoided as should cabbage and onions, because they produce gas and bloating which aggravate the nausea.

In exceptionally severe cases the patient should be hospitalized and given intravenous feedings but nothing by mouth (patients in this condition frequently will steal food when not watched carefully). The chlorides should be carefully watched, and vitamin intake should be high. Patients frequently get tired of this treatment and stop vomiting. One should always be aware that cases of severe hyperemesis are usually psychogenic in origin and the cause of the trouble may be difficult to find.

If the patient's condition becomes too severe the only recourse is therapeutic abortion.

RESIDUALS OF SPLENECTOMY

To the Editor—Are there any residual effects of splenectomy?

M D Wisconsin

ANSWER—The residual effects of splenectomy are not serious. Ask Upmark studied 100 patients from 1 to 27 years after splenectomy and, in addition, 94 other cases from the literature in which the spleens had been removed for traumatic reasons. He concluded that persons whose spleens have been removed should be accepted for insurance on the usual terms and concluded that these persons are essentially normal. The spleen is congenitally absent in some persons but they appear to have a normal life span. Riches collected 13 such cases and concluded that the patients showed no deviation from normal health. Immediately after splenectomy for any purpose there is an increase in blood platelets, leukocytes and red cells with the values gradually subsiding to normal within a few weeks. In some patients there may be a persistent absolute and relative lymphocytosis for many months. It has been stated occasionally that patients subjected to splenectomy have a tendency toward excessive fatigue, but this is difficult to prove.

There seem to be no residuals of splenectomy from removal of either the traumatized spleen or the spleen with organic pathological changes. In either case there may be a slight generalized lymphadenopathy for weeks to months but this gradually subsides and apparently does not produce any clinical effects. Such lymphadenopathy is presumed to develop as a compensatory lymphoid and endothelial hyperplasia. Occasionally splenectomy may be followed by the development of accessory splenic nodules. This is extremely rare. Altogether there is no substantial evidence to indicate the existence of long time residual effects of splenectomy for any cause.

MOLES ON THE SCROTUM

To the Editor—A 35 year old white man first noticed a small mole or two on the scrotum two years ago. They have enlarged slightly and new ones have appeared. At present there is a scattering of about 50 small moles over the scrotum mostly of pinhead size two being larger and one of these overlying a superficial vein which is nearly as wide as the mole. Please advise as to the management of this condition.

M D Washington

ANSWER—The location and description of the lesions mentioned suggest a diagnosis of a relatively unusual skin disturbance, namely, angiokeratoma of the scrotum. Such lesions have been described on the extremities and on the scrotum and usually appear at various points along capillaries of these areas. A good illustration and description of these lesions are given in the ninth edition of Sutton and Sutton's "Diseases of the Skin." Diagnosis can be verified by excision of one of the small lesions and its examination by a dermatopathologist.

The lesions are persistent and so far as is known are harmless. The cause is not known, although they frequently appear in connection with varicoceles and varicose veins which suggests a circulatory factor. The individual lesions can be readily destroyed by electrodesiccation with a fine needle.

HYPERTENSION IN A YOUNG MAN

To the Editor—I have a 29 year old son a second year medical student who for four years has had essential hypertension. He has been on a low sodium diet for two years and the medical school directed him to take phenobarbital daily (90 to 120 mg). This phenobarbital seems to dull his mental processes. Under the strain of medical schooling his blood pressure averages about 170 systolic and 125 diastolic. What can I give him to lower the blood pressure and at the same time not retard his mental activities?

M D Texas

ANSWER—Hypertensive arterial disease beginning in one as young as 25 years is as a rule rapidly progressive and much more menacing than when the onset occurs later in life. With an average arterial tension of 170 systolic and 125 diastolic the outlook is dubious. Of major importance is a most thorough search for causative factors, such as renal injury, unilateral renal disease, anemia and sources of anxiety. Effective therapy is dependent on elucidation and correction of etiologic influences. There are too few data in the query to outline a specific therapeutic program.

Though more generally prescribed than any other drug in hypertensive disease, phenobarbital presents so many disadvantages that it is rarely the drug of choice. Because it "dulls" and makes the patient "fuzzy" and inefficient, anxiety is often increased and the whole purpose of the medication defeated. Potassium thiocyanide in effective dosage is none too safe, therapeutic and toxic concentrations in the blood are too close unless frequent checks of blood concentration are made. A safe sedative which calms without creating dullness and/or depression is diphenylhydantoin (dilantin®) sodium, ½ grain (30 mg) three times daily. Capsules of bismuth subnitrate 10 grains (0.60 Gm) three times a day exert a mild continuous nitrite vasodilator effect. Veratrum viride has not been proved to be especially effective, though some clinics have claimed excellent results. The new steroids are not indicated in the light of present knowledge.

However the most urgent indication is a truly comprehensive study and search for possible contributory etiologic factors. It is relatively futile to treat merely the symptoms of hypertension. Analysis of the individual etiologic picture (which differs in each instance of hypertensive disease) must precede any truly effective therapeutic program. For example it is possible that this young man should not be in medical school at all, that he is trying to convince himself that this is the right career for him, whereas he does not want it and only his father wants it. Such inner conflict, below the level of awareness could well be a major factor in the genesis of truly dangerous hypertensive disease.

REPEATED MISCARRIAGES

To the Editor—A white woman now aged 30 had a normal pregnancy and labor ten years ago since then she has had six miscarriages and premature labors the period of gestation being three to seven months. Six years ago she had a thyroidectomy for a toxic goiter but she has since had three premature labors. Her physical examination is normal and serologic reaction to the Wassermann test is negative, she is Rh positive, her urine and blood pressure are normal. Three years ago she was examined at a clinic but no abnormal condition could be found. During one pregnancy she was kept quiet and given synthetically prepared progesterone without benefit. Her weight and basal metabolic rate are within normal limits. What is suggested?

C J Gaspel M D Grafton N D

ANSWER—Provided that the cervix is not torn and the patient had no previous surgery such as partial amputation thyroid may be given until the patient's morning pulse rate before arising is 75 to 80 per minute. This should be done before the patient becomes pregnant. Once the patient is pregnant estrogenic therapy is begun and continued throughout pregnancy. This can be started at about three weeks of pregnancy without fear of feminizing a male baby and should be given in large doses within the limits of tolerance of the patient, usually the initial dose is 5 mg of diethylstilbestrol this is increased to 25 mg a day.

In many cases one cannot be sure that chronic abortion is not the fault of the fetus. Evidence of a living fetus at time of abortion helps determine this.

Other general measures are important. Perhaps dilatation and curettage would reveal a fibroid in the uterine cavity. Cervical erosion should be treated, as should infection with yeast or trichomonas. Intercourse or douches should not be allowed. If the abdominal wall is relaxed a well fitting corset should be worn. The possibility of nephritis should be ruled out, as patients with this disease are more apt to experience abortion. Occasionally chronic endometritis such as that caused by chronic fibroids or tuberculosis may be the cause.

TONSILLECTOMY

To the Editor—What is the relative merit of the various technics of tonsillectomy: snare, hemostatic tonsillectomy and free hand complete dissection? Which has the least incidence of recurrence of tonsillar tissue, which does a more complete removal of the tonsil, and which is least shocking to the patient? What is the attitude with regard to the lingual tonsil, and does the tonsillectomy succeed in its removal? What is the better method of handling hypertrophic lymph tissue in the oropharynx?

M D, California

ANSWER—Each one of the above named methods of removing tonsils is equally good in the hands of the well trained person, nor does any one excel in any important regard. During the course of a well performed tonsillectomy it is often necessary for one to remove additional lymphoid tissue in the area between the tonsillar fossa and the base of the tongue. This does not properly deserve to be called lingual tonsil. The latter is defined as the lymphoid aggregations on the posterior aspect of the tongue proper, and these seldom have to be removed during routine tonsillectomy. When on occasion the lingual tonsil becomes hypertrophied and diseased, and this is generally in adult life, it can be removed as a separate procedure. There is no one best method of handling hypertrophied lymphoid tissue in the oropharynx. Hypertrophied islands of tissue on the back wall or enlarged so-called lateral bands need no care unless they cause symptoms. Should they become troublesome because they are frequent sites of inflammation and so of annoyance, then radiation therapy in the hands of an expert, judicious cauterization with the actual cautery or use of surgical diathermy over a number of treatment periods gives moderately successful results. On occasion large discrete lymphoid collections may be successfully removed by surgical methods.

TOXEMIA OF PREGNANCY

To the Editor—A white woman aged 21 when first seen in the fifth month of her first pregnancy had extensive edema of the face and of the legs up to the knees. The blood pressure was 145 systolic and 95 diastolic. The urine showed the presence of albumin (4 plus) but not of cells or casts. Under salt-free diet, digitalis and aminophylline the edema disappeared, but the albuminuria persisted and the hypertension increased. Edema reappeared in the eighth month, the patient went into labor and gave birth to a premature but healthy baby. At that time her blood pressure was 180 systolic and 122 diastolic, it increased post partum almost to 200 systolic. Seizures were expected but failed to appear, possibly because of heavy sedation. Since then she has shown steady improvement. Now she is pregnant again. Should meat be restricted and will similar symptoms arise again? The picture fits neither nephritis nor nephrosis. The nonprotein nitrogen determination could not be done until delivery, when it was 54.

Walter Newman, M D, Springfield, Mass

ANSWER—There are insufficient data on which to base an opinion concerning the conduct of this case. It is important to know how much time has elapsed between the first delivery and the present pregnancy and also the present blood pressure, urinary findings, nonprotein nitrogen and other facts. If the patient's diastolic blood pressure is 110 or over, the pregnancy should be terminated. If it is not, conservative treatment may be tried for a while. The patient must be seen frequently throughout her pregnancy. There is no need to restrict meat or other proteins in cases of hypertension and toxemia. In pregnancy there is a greatly increased demand for proteins, and unless this is met there may develop nutritional edema and anemia. However, restriction or entire omission of sodium chloride is important in the prevention and treatment of the toxemias of pregnancy and hypertension.

POSSIBLE HYGROMA OR MYXOMA

To the Editor—My patient has a lesion in the soft structures immediately posterior to the nail on the ring finger of both hands. A small indurated area that was painful later opened and discharged a clear gelatinous material. This healed and later, after a period during which it was painful, discharged again. Please discuss diagnosis and treatment.

Don F Russell, M D, Van Wert, Ohio

ANSWER—It would be helpful if more information were available. Nothing is reported concerning the age or sex of the patient, the duration of the lesion, the number of recurrences and whether the lesions completely disappear in the interval or intervals. From the information given, there is a possibility that the condition may be a hygroma or cystic lymphangioma. This disease is usually congenital and affects most often the anterior cervical region but may occur elsewhere. The lesions are usually thin-walled growths, varying in size, containing dilated lymph spaces filled with fluid. It has been stated that spontaneous cure does occur. Surgical excision would probably be the preferable treatment, in addition, this would provide the opportunity for biopsy and a definite diagnosis.

Another diagnostic possibility is myxoma. This is an uncommon tumor consisting of mucoid tissue derived from embryonal cells which have the capacity for forming mucin. These growths may occur anywhere and are also variable in size. They are usually not indurated but rather soft in consistency. They may exude a sticky colorless mucous material. The preferred treatment in this instance would consist of complete surgical removal. Whatever the diagnosis, roentgenograms of the finger should be made in order to determine if possible, the extent of involvement.

THE PORPHYRIN TEST

To the Editor—Please give information on the porphyrin test for lead absorption in industry.

E D Huntington, M D, Chicago

ANSWER—Porphyrins are red pigments always present in the urine and embrace many varieties distributed over animal and vegetable organisms. Coproporphyrins are the type best known to be associated with lead absorption and lead intoxication. However, in addition to appearance of porphyrin in traces in all urine, many pathologic conditions lead to increased urinary levels. Moreover, in a rare disease, congenital porphyria, high levels of these pigments are excreted. Since 1896 it has been known that the porphyrin level may be increased in lead poisoning. Since then there have appeared various cycles in which porphyrin determination has been highly regarded in diagnosis of plumbism followed by abandonment of the procedure because of numerous false positive results. It appears to be true that in a high percentage of instances the urinary increase in porphyrins antedate the appearance of stippled red cells, itself an occurrence of limited diagnostic value. Test procedure:

To 10 cc urine in a test tube 2 drops of glacial acetic acid and 2 drops of 3 per cent hydrogen peroxide solution are added together with 15 cc of ether. The test tube is actively shaken. A fluorescence appears in the ether layer, and this may be examined in the presence of ultraviolet light. A light blue or green indicates the normal porphyrin content, a slight red fluorescence a slight increase in the porphyrin. Further increases in the depth of the red fluorescence mark increasing quantities of porphyrin.

Through the use of colorimetry this test may be made quantitative. Although both false positive results and negative results may be obtained, this procedure is of value in screening operations in mass numbers of lead-exposed workmen. A final appraisal of lead absorption or lead intoxication should not be predicated solely on the basis of porphyrins.

ESTROGENS

To the Editor—Is estradiol better than estrone for the treatment of menopausal patients?

Robert M. Catey, M D, Oregon, Ill

ANSWER—Used in proper dosage all estrogens have the effect of relieving menopausal symptoms. The selection of an estrogen may be dictated by the route by which the drug is to be given. Orally, estradiol is 25 to 40 times as potent as estrone and is the preferred drug. But when these endocrine substances are given by the intramuscular route, the estrogenic effect of estradiol is exhausted in a few hours, while that of estrone persists for twenty-four hours or more, therefore, estrone is preferred for parenteral administration. The benzoate and dipropionate esters of estradiol, when given parenterally, have even longer durations of activity than estrone, thus necessitating injections at only weekly or greater intervals.

So-called toxic side effects seem to be a factor of dosage rather than type of drug used. All the estrogens, whether natural, conjugated, synthetic or the stilbene derivatives, produce nausea and vomiting when used in large enough doses.

Any estrogen should be used in the smallest effective dosage to accomplish the desired effect, and the dose depends on the effect desired.

PIGMENTED NEVI

To the Editor—A 4 year old boy has a blue black, small, raised nevus on the left shoulder. Should this be excised because of its malignant potentialities? If so, when?

Harry Kaufman, M D, Rochester, N Y

ANSWER—There are no hard and fast rules with regard to the treatment of pigmented nevi. In general when a pigmented lesion begins to show signs of activity, i.e., unnatural increase in its size or change of color, it should be destroyed, and it has been suggested that it is better to destroy such a lesion before the onset of puberty. In this case the better course would be to excise the lesion and examine it histologically, because it is pigmented, raised from the surface and situated where it can hardly escape injuries and the patient is not yet adolescent. Then, too, the lesion is small, so that the resultant surgical scar will be small and probably will constitute a cosmetic improvement over the nevus.

HEMOGLOBINURIA

To the Editor—An unmarried woman aged 26 four years ago was severely drenched in a storm subsequently she had a severe chill and noticed bloody urine. Since that time she has had recurrent severe hematuria. She has been thoroughly studied. She had a splenectomy which gave her no relief. All studies have yielded negative results except urinalysis. The diagnosis is essential hemoglobinuria. Is there any treatment other than the repeated transfusions which might help her?

M D New York.

ANSWER—It is assumed that the diagnosis of hemoglobinuria is correct and that there is not actual bleeding from the genitourinary tract as implied by the question. Almost all cases of hemoglobinuria can be attributed to some known causative agent. These may be found in medical textbooks.

The treatment of hemoglobinuria should include the removal or the avoidance of known causative factors. Transfusions are necessary when there has been massive blood destruction, however, in some cases these may be followed by reactions. Supplementary iron should be given. Intercurrent infections, no matter how slight, should be controlled. Recent data lend doubt to the belief that alkali therapy prevents renal damage during hemoglobinuria, and certainly the production of alkalosis is to be avoided. The antihistaminic drugs may be of value in those cases due to allergic causes.

There is no reason to believe that penicillin will be of any benefit in conditions other than the hemoglobinuria caused by syphilis or those which occur in certain rare, acute or subacute, bacterial infections which respond to the drug. The paroxysmal cold hemoglobinuria found in certain patients with syphilis may not respond to any form of treatment.

NAIL POLISH AND PSYCHONEUROSIS

To the Editor—A white woman aged 28 swallowed some nail polish remover eight months ago. The quantity was probably less than 1 ounce (30 cc.). The polish remover consisted primarily of ethyl acetate and methyl alcohol. Since then the patient has been complaining of severe burning in the middle epigastrium, constant dryness, anorexia, nausea, vomiting for the first three months after ingesting the polish remover and loss of weight of about 20 pounds (9.1 Kg.) mostly due to anorexia. Physical examination revealed essentially normal conditions. A series of roentgenograms of the gastrointestinal tract was also normal except for evidence of pylorospasm. Previous history of the patient reveals a basal metabolic rate of -59 per cent ten years prior to the aforementioned incident. The basal metabolic rate recently was normal (Ten years ago the patient was given strong iodine solution.) It is my impression that this is a case of psychoneurosis. Has something of a similar nature been reported in the literature? Are liver function tests indicated?

M D New York

ANSWER—The fact that symptoms first appeared three months after the ingestion of the chemical almost conclusively rules out the nail polish remover as the cause. Immediately after the intake of the substance the symptoms mentioned might have occurred, and if the quantity ingested and the percentage of methyl alcohol were high, then typical methyl alcohol poisoning could have occurred since irregularly small quantities have incited severe damage including visual impairment.

The treatment should be directed to the dislodgement of a probable neurosis. The symptoms mentioned might exist on an organic basis from some other cause, this possibility should be investigated. Liver function tests would be of value only in connection with a general exploration and not because of suspected damage from the substance mentioned.

REACTION FOLLOWING PERTUSSIS VACCINE

To the Editor—A healthy 6 month old girl was given a first injection of diphtheria tetanus toxoids alum precipitated and pertussis vaccine combined (tr. immunol®). Two days later fever and recurrent vomiting developed which continued for two days. On the sixth day she slept almost all day and was decidedly lethargic the next morning she could be aroused but at once would drop back to sleep. At this time her rectal temperature was 96 F., physical examination revealed no other abnormalities. By noon she was more awake, became alert that afternoon and has seemed well ever since. In view of the report of Byers and Moll (*Pediatrics* 1:437 [April] 1948) on the occasional effect of pertussis vaccine would it be safe in six weeks to give her a second injection of pertussis vaccine?

M D Indiana

ANSWER—Apparently most of the serious reactions, including encephalitis, which have followed the administration of pertussis vaccine, have occurred in children with mental deficiency or when there was a history of some mental abnormality in a member of the family or a relative. It might be safe to give a second injection of pertussis vaccine but in view of the first experience it does not seem wise to do so. Sometimes the later doses of pertussis vaccine produce severer reactions than did the primary injection.

TUBERCULOUS ULCER OF THROAT

To the Editor—A 38 year old white woman with arrested pulmonary tuberculosis complained of irritation of the throat and frequent desire to cough. The diagnosis was tuberculous ulcer and dihydrostreptomycin was recommended as treatment. She received 50 Gm over a period of seven weeks ending four months ago. The irritation and cough were much relieved and the temperature was reduced from 100.4 to 99.2 F. and continued so until four weeks ago when the symptoms became gradually severer. Could any benefit be expected from aureomycin therapy?

M D Kansas

ANSWER—If the diagnosis is correct, aureomycin should not be used as it has little or no effect on a tuberculous lesion. The bacilli should be tested for resistance to dihydrostreptomycin and streptomycin. If the bacilli are not resistant another course should be given, preferably with 12 Gm paraaminosalicylic acid (PAS) a day in four daily doses. The method of administration is described in a recent article by Sweany and his co-workers (Preliminary Report on Use of Paraaminosalicylic Acid in Treatment of Pulmonary Tuberculosis, *Dis of Chest* 16:633 [Dec] 1949).

TREATMENT OF LEPROSY

To the Editor—What is the newest treatment of leprosy? Is the disease curable under actual treatment? How long are the periods of the treatment?

J Toheng M D Covington Ky

ANSWER—The newest treatment of leprosy is with the sulfone derivatives, which include glucosulfone sodium (promin®), sulfoxone sodium (diasone®), thiazolsulfone (promizole®), promacetin® (sodium 4,4'-diaminodiphenylsulfone-2-acetylsulfonamide) and sulfetron (4,4-bis[gamma-phenyl-N-propylaminodiphenylsulfone tetrasodium sulfonate]). Glucosulfone sodium is given intravenously and the other four orally. Leprosy is not spoken of as cured but as being arrested. Improvement is slow but progressive. Three to six months of treatment is usually required before definite improvement can be noted objectively. *Mycobacterium leprae*, however, are slow to disappear from the lesions. Three to four years of treatment are required before bacilli disappear.

CRYPTORCHISM AND ENURESIS

To the Editor—A 6 year old patient has bilateral cryptorchism. I noticed it during an examination for the cause of nocturnal enuresis. I have successfully used thyroid and pituitary in several cases of enuresis and chorionic gonadotropin in 1 case of cryptorchism in a 21 year old man. Is there anything new on this subject?

Frank Sedziak M D Elie Manitoba

ANSWER—The boy should have injections of 500 international units of chorionic gonadotropin. It should be given three times a week for six to eight weeks. Injections should be stopped if genital growth is noticed. If the testes have not descended in eight weeks they probably will not descend with hormonal therapy and the child should have the testes brought down into the scrotum by operation. In cases of enuresis one should ascertain that it is not on an organic basis before any type of therapy is given, the child should be examined carefully to see whether he is emptying his bladder completely.

PENICILLIN AND PECTIN

To the Editor—I am searching for information regarding the use of pectin to delay the excretion of penicillin which has been mentioned by several practitioners in Bangkok. This use is said to have started in America.

O Ketusink M D Bangkok Siam

ANSWER—Suspensions of penicillin in peanut oil and sesame oil with pectin have been prepared for investigative purposes. The rationale for the use of pectin was based on its hydrophilic property, it being thought that the pectin would form a gel after injection from which penicillin would be released slowly. Although some prolongation of serum penicillin concentrations was observed, the effect was not comparable with that obtained with peanut oil and wax preparations or procaine penicillin G preparations. Penicillin products incorporating pectin are not available commercially.

SARCOIDOSIS OF LUNG

To the Editor—Has dihydrostreptomycin any effect on the healing of sarcoidosis of the lung? Have recurrences of the condition been reported or does one attack confer immunity?

M D New York

ANSWER—There is no conclusive proof as yet that streptomycin or dihydrostreptomycin will have any favorable effect on sarcoidosis. The few patients treated have shown equivocal

results. It is possible that the few favorable results were obtained in the acute stages of the disease, whereas the negative results were obtained in the fibroid types after fibrosis was well advanced. So far as is known, only one attack occurs. If more than one episode occurs, it is probably due to an exacerbation of the same process.

TRAUMA AND POLYHYDRAMNIOS

To the Editor—Can trauma be an etiologic factor in the production of polyhydramnios? A multigravida, unipara, aged 33, had a spontaneous abortion at three months and a stillborn at term due to cord strangulation. Her present pregnancy was uneventful the first five months. Then she fell, landing on her face, hands and knees. Two weeks later, her weight increased 3 pounds (1.3 Kg), one month later, 6 pounds (2.7 Kg), another month later, 5 pounds (2.3 Kg), and two weeks later, another 6 pounds. The weight before pregnancy was 148 pounds (21.8 Kg). At term her weight was 180 pounds (81.6 Kg), a gain of 32 pounds (14.5 Kg), and there was dependent edema of the ankles and lower part of the abdomen as the result of mechanical pressure from the extremely distended abdomen.

M D, Illinois

ANSWER—Almost certainly trauma is not an etiologic factor in the production of polyhydramnios. To date no one has attempted to prove such a connection or even expressed a belief in it.

FROZEN VEGETABLES

To the Editor—What harmful effects are to be anticipated from eating frozen vegetables that have been thawed for several days or weeks (at an ordinary refrigerator temperature of 40 to 45 F)? What is the cause of these reactions?

M D, Pennsylvania

ANSWER—Although the freezing of vegetables at low temperatures will destroy or inactivate some micro-organisms, the surviving organisms grow at varying rates depending on temperature and other factors. No statement can be made concerning specific harmful effects from eating vegetables which have been thawed for several days or weeks, since the types of organisms which may grow in the product will depend on many factors, including the acidity or alkalinity of the food and the care taken in processing and subsequent handling. Frozen vegetables should be consumed immediately after thawing because nutrient losses tend to be minimized and unwanted bacterial growth is prevented.

STAINING OF TEETH

To the Editor—I have noticed the darkening of the teeth of a few of my patients who have been taking ferrous sulfate (2 teaspoons contains 0.33 Gm) (Feosol®) elixir. Kindly advise whether this is due to the medicament. If this is so, how long is it safe to use the ferrous sulfate elixir, and what can be done for teeth so affected?

M D, New York

ANSWER—The staining is due to the deposition of metallic iron on the tooth surface. This staining is not permanent if removed in a short time by cleansing by a dentist. It may become fixed if permitted to remain for a long while. The patient should be instructed to take the iron medicament through a glass tube or by coated pill. If an elixir is preferred, the patient should brush his teeth thoroughly after each dose.

BUTANE GAS

To the Editor—A patient who had agranulocytosis of undetermined origin is employed by a butane gas system and is handling products of this nature every day. Is there any danger that this chemical may cause a return of his symptom?

M A Hallum Jr, M D, Brady, Texas

ANSWER—Butane gas and other closely related gases in the same series are relatively harmless. In concentration such as 1 per cent and more an anesthetic action may appear, but no other symptoms. In lower concentration trivial irritation of mucous membranes may be detected. The causation of agranulocytosis or of its recurrence is improbable.

BASAL METABOLIC RATE IN WARM CLIMATES

To the Editor—I practice in St Petersburg, Fla, and notice that the basal metabolic readings here are consistently low. In fact, it is usual to obtain —15 to —20 per cent in patients without signs or symptoms of myxedema. Have any articles been written with regard to basal metabolic rates of normal or diseased persons living in tropical or subtropical countries?

Harry R Deane, M D, St Petersburg, Fla

ANSWER—Articles have appeared from time to time concerning the level of basal metabolism in patients in tropical climates. In general, they tend to run a little lower than in persons living in cooler areas.

TRAUMA AND ARTHRITIS

To the Editor—A worker in a marble corporation was injured during employment. He received a simple fracture of one forearm and of the crest of an ilium, abrasions and contusions of the head, chest and left shoulder. He was in the hospital six weeks and was discharged ambulatory and with his fractures healing satisfactorily. At the end of two months there was firm callus formation, and he was advised that he could return to part time or light work. He refused and employed a lawyer to file suit against his employer, alleging total and permanent disability. Since the accident rheumatoid arthritis has developed, and this man alleges that the accident has produced the disease or has exaggerated a preexisting rheumatoid condition. There is a history that he had a 4F army examination because of a rheumatic heart. Can injuries such as this man received produce rheumatoid arthritis? Could the trauma cause a flare-up of rheumatoid arthritis? This man's arthritis became manifest after his dismissal by the attending physician of the employer. While he was in the hospital the injured man had a febrile period due to acute bronchitis which responded to penicillin and did not last more than a few days.

Homer E Byrd, M D, Carthage, Mo

ANSWER—The cause of rheumatoid arthritis remains unknown. However, precipitating or predisposing factors have been frequently employed in support of theories in regard to its etiology. Such factors include mental or physical strain, infection, exposure to cold or dampness, trauma and childbirth. Data on early cases suggest that these factors may merely determine a more easily recognizable articular phase, since the constitutional symptoms which frequently come first may rightly mark the beginning of the disease. Any one of the factors mentioned may also be associated with an exacerbation in a patient already suffering from rheumatoid arthritis. Trauma is one of the least common precipitating factors, with an incidence of less than 5 per cent in carefully studied series of patients with rheumatoid arthritis. When a joint has been directly injured, the symptoms due to trauma may in rare instances merge without perceptible interval into those of arthritis. In such cases the role of trauma as a precipitating or localizing factor can hardly be questioned. In a recent survey (Jonsson, E, and Berglund, K. Trauma and Rheumatoid Arthritis, *Acta med Scandinav* 135:255, 1949), only 1 case strictly fulfilling these conditions was discovered among 2,236 patients with rheumatoid arthritis. More often trauma may be said to have an indirect effect on the onset of the arthritis or on an exacerbation in its course by means of the mental stress and strain consequent to an injury.

VIRUS NEURONITIS DURING PREGNANCY

To the Editor—A secundigravida unipara woman aged 31 is now seven teen weeks pregnant, when she was ten weeks pregnant, a hyperemesis gravidarum developed. Vitamin therapy did not control the vomiting and she was hospitalized. When twelve weeks pregnant the patient started to complain of severe backache. Examination revealed decided weakness of the seventh cranial nerve, abolition of the superficial reflexes and weakness of the arms and legs. Spinal puncture revealed a low cell count and a high protein content. The consulting neurologist made a diagnosis of Guillain-Barré syndrome and has treated the patient with 2, 3-dimercaptopropanol (BAL). Is therapeutic abortion indicated when a woman 12 weeks pregnant contracts a virus infection? Will the use of 2, 3-dimercaptopropanol that has been recommended in the treatment of virus neuronitis (Furmanski, A R. *Arch Neurol & Psychiat* 60:271 [Sept] 1948) have a deleterious effect on the fetus? Would chloramphenicol be of value?

H M Wiley, M D, Cincinnati

ANSWER—Virus neuronitis is not an indication for therapeutic abortion, there is no reason to believe that interruption of pregnancy would improve the condition. The prognosis of the disease is favorable, but several months may be required for recovery. Although in the article cited good results in neuronitis were reported following the use of 2, 3-dimercaptopropanol, it is not an established form of therapy in this condition. There is no direct evidence of any effect of this agent on the fetus, but vasomotor disturbances following its administration are not uncommon and these might possibly affect the fetus adversely. There is no evidence that chloramphenicol would be of benefit in the circumstances mentioned. Chief reliance should be put on massive vitamin therapy, especially with thiamine hydrochloride.

VITILIGO

To the Editor—Please inform me of the latest advances in therapeutics in relation to vitiligo?

Francisco Ramos Isern, M D, Mexico, D F

ANSWER—There have been no developments in the treatment of vitiligo which can be classified as advances. The measures that have been suggested in recent years include the peroral use of paraaminobenzoic acid, pantothenic acid or vitamin B complex, intradermal injections of gold sodium thiosulfate or hematoporphyrine hydrochloride into affected areas, painting the areas with 95 per cent phenol followed by alcohol after the epidermis turns white. All these methods have been found wanting.

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DIAGNOSIS OF PULMONARY LESIONS DIS- COVERED BY MASS ROENTGENO- GRAPHIC SURVEY

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Denver

Official and voluntary health agencies have in recent years used a technic of mass roentgenography of the chest¹ which is reaching hundreds of thousands of persons throughout the country. The small photoroentgen film used in this technic is not diagnostic, but it generally indicates the presence of an abnormality which must be further identified by the usual 14 by 17 inch (35 by 43 cm.) diagnostic roentgenogram and other studies. The methods used for the identification of these pulmonary lesions shown on the roentgenogram, whether they were unsuspected prior to the mass roentgenographic survey or whether they occurred in patients with vague pulmonary complaints, form the basis of this report. Such lesions are essentially chronic.

Procedure—The diagnosis in the patient with a pulmonary lesion visible in the roentgenogram will be considered from two viewpoints. First, ordinary diagnostic procedures will be discussed in the order of their usual application. These procedures are outlined in the following tabulation.

- A General procedures—routine measures ordinarily used for any diagnostic work-up
 - 1 History—contact with tuberculosis domiciliary region, occupation, age, sex and family history
 - 2 Roentgen and fluoroscopic examinations
 - 3 Physical examination—not particularly helpful in the detection of early lesions of the chest
 - 4 Temperature and pulse and respiratory rates
 - 5 Blood cell count, urinalysis and sedimentation rate
- B Specific procedures in the usual order of their employment—necessity to always rule out tuberculosis
 - 1 Skin tests for tuberculosis, coccidioidomycosis and histoplasmosis
 - 2 Tests of sputum and fasting gastric contents
 - (a) Smears and cultures for tubercle bacilli (culture of gastric contents necessary)
 - (b) Cultures for fungi (technic of obtaining sputum)
 - (c) Cytologic diagnosis of malignant cells

¹From the departments of Medicine and Radiology, University of Colorado School of Medicine.
²Assistant clinical professor of medicine, University of Colorado School of Medicine (Dr. Clark); clinical instructor of medicine, University of Colorado School of Medicine and Chief of Tuberculosis Division, Medical Service, Fitzsimons General Hospital (Dr. Tempel); and clinical professor of radiology, University of Colorado School of Medicine (Dr. Allen).
³1. Burkelo C. C., Chamberlain W. E., Phelps P. S., Schools P. E., Zachs D. and Yerushalmey J. Tuberculosis Case Finding: A Comparison of the Effectiveness of Various Roentgenographic and Photofluorographic Methods. J. A. M. A. 133: 359-366 (Feb. 8) 1947.

- 3 Serologic procedures—tests for cold agglutinins and antibodies
- 4 Bronchoscopic examination
 - (a) Condition of major bronchi
 - (b) Biopsy
 - (c) Bronchial aspiration and washings for cells
- 5 Bronchographic study
- 6 Streptomycin for therapeutic trial as a means of diagnosis of tuberculosis
- 7 Pneumoperitoneum and pneumothorax
- 8 Barium swallow
- 9 Needle aspiration and biopsy
- 10 Valsalva procedure and angiocardigram
- 11 Exploratory thoracotomy

Second, the differential diagnosis of certain of the more common pulmonary diseases will be discussed. These diseases are listed in the following tabulation.

- 1 Tuberculosis (pleurisy with effusion)
- 2 Bronchogenic carcinoma
- 3 Bronchiectasis
- 4 Bullous emphysema, cystic disease, spontaneous pneumothorax
- 5 Silicosis and diseases due to other industrial inhalants
- 6 Atypical pneumonia
- 7 Fungus infections
- 8 Chronic lung abscess and chronic encapsulated empyema
- 9 Chronic nonspecific (cholesterol) pneumonitis and atelectasis
- 10 Fibrosis and emphysema
- 11 Sarcoidosis
- 12 Lymphoma
- 13 Metastatic carcinoma
- 14 Leukemia, polycythemia vera, collagen diseases, eosinophilic pneumonopathy (Loeffler's syndrome)
- 15 Circulatory changes (chronic passive congestion, uremia, mitral stenosis)
- 16 Diaphragmatic hernia
- 17 Other tumors: bronchial adenoma, neurofibroma, dermoid cyst, hamartoma, substernal thyroid

GENERAL DIAGNOSTIC PROCEDURES

History—The general diagnostic procedures are applied in the same fashion as they are in the study of any patient. The identification of a pulmonary lesion is no different from that of a diseased condition elsewhere. The history is of the greatest importance. It allows the physician to get acquainted with the patient and his emotional problems as well as to evaluate and to integrate the patient's various complaints. It assists in the selection of the roentgen technic to be used. Some special emphasis should be placed on questions dealing with contact with tuberculosis, the regions of the country in which the patient has resided, his occupations, age, sex, race and family history.

Röntgen Examination—It is beyond the scope of this article to describe the characteristics of a good radiograph or how to produce one. When referred to it is to be understood that the radiograph should be of

good detail, optimum contrast and proper density. It must be realized that evidence of early disease particularly tuberculosis, can be completely obliterated by too much density and poor contrast and can be simulated in a normal chest by too much contrast and too little density. Interpretation of the radiograph is the important item.

Fluoroscopic Examination—Use of the fluoroscope is not only completely inadequate for the detection of early disease but can actually be a menace by producing a false sense of security. It can be dangerous to the patient and the physician who is not expert in the manipulation of the instrument. For its limited use its roentgen output per minute must be known, a cumulative clock showing the total time used on each patient must be used, adequate space for its housing must be provided and fifteen minute dark adaptation for the operator's eyes must be obtained before the first examination is attempted.

Physical Examination—The efficacy of the physical examination of the chest and the lungs is disappointing in most chronic pulmonary diseases, especially in the discovery of an early lesion. Rales, changes in the percussion note and bronchial or bronchovesicular breath sounds may be detected in connection with any lung disorder, but more often they are not heard. When heard, they are frequently nonspecific from a diagnostic standpoint, except in chronic bronchitis and asthma, and serve only to further localize the lesion. Diminished or absent breath sounds in the presence of normal resonance or hyper-resonance suggest emphysema or spontaneous pneumothorax. On the other hand, an evaluation of the circulatory status of the patient by physical examination may be of the greatest importance. This can be especially true when the condition is mitral stenosis and insufficiency. Enlarged external lymph nodes, by their location, number and consistency, may indicate carcinoma, sarcoidosis, tuberculosis, one of the various blood dyscrasias or lymphoma. A biopsy of the node may then settle the diagnosis. Splenic enlargement is frequently noted with the blood dyscrasias or lymphomas.

The differential diagnostic value of the temperature and pulse and respiratory rates is not great. A rise in temperature may indicate an infectious process. Changes in the pulse and respiratory rates are common phenomena whose significance is well known. The same applies to the blood cell count and urinalysis. The blood cell count usually leads to the diagnosis of a blood dyscrasia, if such is present. Other information from the blood cell count is common knowledge, as are the findings of a urine examination, and will not be further discussed here. The sedimentation rate is elevated in inflammatory reactions and with tissue destruction and, therefore, is nonspecific.

SPECIFIC DIAGNOSTIC PROCEDURES

Skin Tests—Three different skin tests are commonly used, the tuberculin, the coccidioidin and the histoplasmin. If properly performed, these tests are reliable for the disease in question. A positive reaction to a skin test indicates that the patient has or has had an active infection. A negative reaction usually rules out the disease being studied. It may be possible for a tuberculous infection to have long since been destroyed although a scar of fibrous tissue, with or without calcium deposits, remains. Apparently a patient in which this has occurred may rarely have

a negative reaction to a tuberculin skin test.² A negative or depressed skin reaction may also be obtained if the infection has been recent, if the patient is seriously ill with the disease or with certain other illnesses such as measles, and if the patient is extremely dehydrated. With these exceptions it follows that a negative reaction to a skin test, especially if it has been done more than once with an adequate quantity of antigen rules out the disease in question.

The details of skin testing will not be elaborated here. The methods have been adequately described. A positive reaction to an intracutaneous test is characterized by an area of inflammation (redness and induration) at least 0.5 cm in diameter. The purified protein derivative of Seibert is a satisfactory preparation of tuberculin and can be obtained from most drug houses. Coccidioidin in a concentrated form may be obtained from the Cutter Laboratories, Berkeley 10, Calif. The concentrated material is diluted 1:100 with sterile isotonic sodium chloride solution. The dilution lasts many months. The skin test is performed in the same manner as the tuberculin (Mantoux) test and is read in the same fashion. Histoplasmin may be obtained from the Lilly Research Laboratories, Indianapolis 6, Ind. The proper dilution is indicated with the material. The test is performed and read as are the tuberculin and coccidioidin skin tests.

Sputum—If the patient with a pulmonary lesion has sputum, it should always be examined for the presence of tubercle bacilli in the manner to be described. If the patient does not raise sputum it will then be necessary in most instances to culture the fasting gastric contents for tubercle bacilli. This is another way of saying that nearly all pulmonary lesions are primarily suspect for tuberculosis. It is usually best to obtain a twenty-four hour sample of sputum. The patient should be instructed by the physician as to what is meant by sputum. If the sputum is scanty (a teaspoonful or less) in twenty-four hours, then a forty-eight hour or, rarely, a seventy-two hour specimen should be collected. When an attempt is being made to establish a diagnosis of tuberculosis for the first time, the laboratory to which the sputum is sent should be instructed to culture the sputum for tubercle bacilli as well as to search for them by smear. Guinea pig inoculation for detection of tubercle bacilli can be used in place of culture methods, but the latter are now as accurate as guinea pig inoculation for the isolation of the bacillus.

If sputum is not available from the patient the fasting gastric contents can be examined for the tubercle bacillus. The only instructions necessary for the patient are that he come to the laboratory as soon after getting up in the morning as possible and that he should neither eat nor drink anything after midnight the night before. The stomach contents are aspirated with a small soft rubber tube. If the aspiration is done in the physician's office, an equal amount, by volume, of hydrated tribasic sodium phosphate solution ($\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$, 23 Gm per 100 cc distilled water) should be immediately added to the gastric contents,⁴ which should be taken to the laboratory as soon as possible. It has been found that

² Rich, A. R. *The Pathogenesis of Tuberculosis*. Springfield Ill. Charles C Thomas Publisher, 1944, p. 369.

³ Diagnostic Standards, New York National Tuberculosis Association, 1940, p. 23.

⁴ Corper, H. J., and Stoner, R. E. An Improved Procedure for the Diagnostic Culture of Mammalian Tubercle Bacilli, *J. Lab. & Clin. Med.* 31: 1364-1371 (Dec.) 1946. Kabler, P., and Lundholm, R. Culture of Tubercle Bacilli from Specimens of Gastric Juice, *Am. J. Clin. Path.* 19: 685-687 (July) 1949.

unaltered gastric juice will destroy the tubercle bacillus after contact with it for a few hours. There are frequently acid-fast bacilli other than tubercle bacilli in the stomach. For this reason smears of gastric contents have little value. The only satisfactory method of examining gastric contents for the tubercle bacillus is to culture the material for the organism. The details of the culture methods will not be elaborated here. In our experience Petragani's culture medium is the best for isolation of the tubercle bacillus. It takes three to eight weeks for the bacillus to grow on this medium. Recently Berry and Lowry⁵ developed a slide culture technic which will demonstrate the tubercle bacillus in two to six days.

Sputum which is to be cultured for fungi should be obtained with certain precautions. The patient is instructed to rinse out his mouth with water or, preferably, with a dilute solution of alcohol and water before coughing up the sputum specimen. *Candida*, *Aspergillus* and other pathogenic and nonpathogenic fungi are frequent mouth contaminants and may be expectorated with the sputum if not removed beforehand. It is a relatively simple matter to culture sputum for fungi.⁶ Sabouraud's mediums are generally used, but most fungi will also grow on ordinary blood agar mediums. The identification of the fungus is a matter for the expert. The fungus *Coccidioides immitis* is destroyed in the stomach, whereas the fungus *Histoplasma capsulatum* is not. Experience indicates, however, that it is difficult to culture pathogenic fungi from the stomach, so that the procedure is seldom used except in special studies.

Carefully obtained samples of sputum can be studied by the Papanicolaou technic⁷ for malignant cells, which, if definitely identified, are diagnostic of bronchogenic carcinoma. Such sputum must be in the laboratory in a matter of minutes after being coughed up. If this is not possible, the patient should be given a small, wide-mouthed, stoppered bottle in which 10 to 15 cc of 70 per cent alcohol has been placed. When the patient raises sputum he spits it into the bottle containing the alcohol. When mixed with the alcohol the sputum becomes fixed and will keep for several days. Even so, the sooner it is examined for malignant cells, the better the preparation will be. In many hospitals and clinics the cytologic diagnosis of malignant cells is now well beyond the experimental stage. In such institutions nonmalignant cells are called malignant in only 2 to 4 per cent of the cases studied. This mistake is called a false positive diagnosis. A false negative diagnosis, or one which occurs when the patient has bronchogenic carcinoma but malignant cells are not found in the sputum, occurs in 6 to 10 per cent of cases. This makes a total error of 8 to 14 per cent. Formerly a positive diagnosis of bronchogenic carcinoma could be made by bronchoscopic examination and biopsy in somewhat less than 50 per cent of cases. In contrast to this, 86 per cent or more

positive diagnoses of carcinoma have been made through cytologic study of sputum and bronchial washings. Nevertheless, all patients with suggestive bronchogenic carcinoma should have a bronchoscopic examination. A bronchoscopic biopsy section will detect the nature of the carcinoma (squamous cell glandular, oat cell or other), and the examination itself will frequently reveal the location and development of the tumor. All this information is vital to the chest surgeon who plans to remove the tumor and is desirable for the radiologist if he is to treat a patient with an inoperable case of the disease.

Serologic Procedures—A Wassermann or Kahn test of the blood should be made for every patient. Cold agglutinins are found in the serum of most patients with atypical pneumonia after a week or so of the disease.⁸ Antibodies for fungus antigens are frequently present in the blood during the active stages of the infection.^{9a} Dr Charles E. Smith of the University of California School of Public Health, Berkeley 4, Calif. will accept blood samples for study for antibodies in coccidioidomycosis. He requires a short clinical summary of the case.

Bronchoscopic Examination—Bronchoscopic examination is a highly specialized technic which should be done only by the expert. Many physicians have learned to pass a bronchoscope but have not seen enough pathologic conditions to qualify as experts. Initially, the bronchoscope was used to remove foreign bodies from the larynx, trachea and bronchi. It has now become a diagnostic instrument of great worth. It is used not only to secure biopsy sections but also to note the condition of the lumen of the bronchi, especially the bronchial mucosa, and to aspirate bronchial secretions which may not be prolific enough to form sputum. Frequently the bronchial secretions cannot be aspirated, and in this event 15 to 20 cc of sterile isotonic sodium chloride solution is introduced into the bronchus through the bronchoscope and is aspirated back with the bronchial secretions. Such bronchial washings are used for study for malignant cells. Five or ten cubic centimeters of 95 per cent alcohol should be added to the washings unless they can be sent immediately to the laboratory. The culture of bronchial aspiration material or washings for the tubercle bacillus is seldom successful if the organisms cannot be cultured from the sputum or from the gastric contents. There are few contraindications to bronchoscopic examination. It can be done a few days after hemoptysis, it is used freely in patients with any stage of pulmonary tuberculosis, and age is not a factor. A patient who is seriously ill should not, as a rule, undergo bronchoscopic examination. This would include patients with a serious disease of the larynx.

Bronchographic Examination—The bronchogram, or roentgenogram made after the instillation of radiopaque oil, usually iodized oil, into the bronchial tree, has its main function in the diagnosis of bronchiectasis. It is usually not helpful in the diagnosis of chronic lung abscess, cystic disease or emphysema. The bronchogram is occasionally helpful as a means of differentiating normal lung tissue from tissue affected by bullous

⁵ Berry J W and Lowry H. A Slide Culture Method for the Early Detection and Observation of Growth of the Tubercle Bacillus. Preliminary Report, Am Rev Tuberc 60 5161 (July, 1949).

⁶ Manual of Clinical Mycology. National Research Council Committee on Medicine. Philadelphia and London W B Saunders Company 1945 p 319.

⁷ Papanicolaou G N. Diagnostic Value of Exfoliated Cells from Cancerous Tissues. J A M A 131 372-378 (June 1) 1946. Watson W L, Cromwell H, Craver L and Papanicolaou G N. Cytology of Bronchial Secretions. Its Role in the Diagnosis of Cancer. J Thoracic Surg 18 113-123 (Feb.) 1949. Herbut P A and Clerf L H. Bronchogenic Carcinoma. Diagnosis by Cytologic Study of Bronchoscopically Removed Secretions. J A M A 130: 1006-1012 (April 13) 1946. Woolner L B and McDonald J R. Bronchogenic Carcinoma. Diagnosis by Microscopic Examination of Sputum and Bronchial Secretions. Preliminary Report. Proc Staff Meet. Mayo Clin 22 369-381 (Sept 3) 1947.

⁸ Dingle J H, Williams R F and Craig J P. The Diagnosis and Management of Atypical or Virus Pneumonia. Ann. Int. Med 30 1134-1142 (June) 1949.

^{9a} In the near future the Cutter Laboratories Berkeley 10, Calif. will provide the materials for coccidioidal serology tests. The Mycology Laboratory, Communicable Disease Center, United States Public Health Service, Chamblée Ga. will accept a limited number of blood samples on presumably active cases of histoplasmosis. For this service they require a brief clinical summary and any pertinent epidemiologic data. The blood samples should be allowed to clot and 5 to 10 cc. of serum should be sent in a Wassermann tube without any preservative added.

emphysema In obstructive pneumonitis bronchograms are frequently helpful in demonstrating the point of obstruction and the pulmonary segment or segments involved A bronchogram should be made with caution if asthma or hypertrophic emphysema is suspected Patients with such diseases frequently have difficulty in freeing their lungs of the iodized oil, which may also reduce an otherwise low vital capacity With these exceptions there are few contraindications to bronchography Rarely a person is allergic to iodized oil In this instance one of the other radiopaque oils can be substituted One point should be kept in mind about the bronchogram It may take days or weeks, and occasionally months or years, for the lung to rid itself of the iodized oil Retained iodized oil may obscure lesions which are present or simulate disease in a normal lung

Streptomycin—It is occasionally recommended that streptomycin be given to a patient who has an undiagnosed lesion of the chest If, with streptomycin therapy, the lesion improves in a matter of two or three months, this suggests that it is tuberculous in nature The use of streptomycin in this manner has little to commend it Results are often equivocal, so that the diagnosis remains in doubt Precious time is lost if the lesion is a carcinoma A tuberculous lesion might be ineffectively treated by this method, and at the same time infection might become resistant to the further action of streptomycin

Pneumoperitoneum and Pneumothorax—Pneumoperitoneum,⁹ or the injection of air through a needle into the peritoneal cavity, and pneumothorax, or the injection of air into the pleural space, are generally used as therapeutic measures It becomes necessary at times to determine the position of the diaphragm in a radiograph This can be accomplished by the performance of a pneumoperitoneum, which should be done by one well trained in this procedure If the base of the lung is obscured by a lesion, the pneumoperitoneum, by revealing the position of the diaphragm, will show whether the lesion in question is above or below the diaphragm In the past pneumothorax¹⁰ was used not infrequently to further delineate a pulmonary lesion It is seldom used for this purpose now A small pneumothorax space is better visualized in a radiograph made at complete expiration

Barium Swallow—Fluoroscopic examination of the esophagus, posterior mediastinum and stomach while the patient swallows a barium suspension can give important information¹¹ Diaphragmatic hernia may cause abdominal viscera to produce bizarre shadows in the roentgenogram of the chest This can be better visualized if barium is used

Needle Aspiration and Biopsy—Thickened pleura and pleural fluid are often indistinguishable when the previously discussed diagnostic procedures are used In this event it becomes necessary to aspirate for fluid If fluid is present, it generally can be found with a needle As a rule any pleural fluid should be cultured for the tubercle bacillus as well as for other organisms Malignant cells are rarely found in centrifuged pleural fluid A few physicians have used a needle to aspirate

material from tumors of the chest¹² In most hands the method has proved to be dangerous¹³ One can produce pneumothorax, hemorrhage or spread of a cancer along the needle track With the development of the cytologic technic for the detection of bronchogenic carcinoma, the need for needle biopsy of chest tumors has largely disappeared

Valsalva Procedure and the Angiocardiogram—The Valsalva procedure and the angiocardiogram are mentioned for the sake of completeness¹⁴ The Valsalva procedure, performed at the moment when an ordinary roentgenogram of the chest is made, makes possible better visualization of an arteriovenous shunt in the lungs In this procedure the patient attempts to inhale while holding his nose and mouth, and a roentgenogram of the chest is made The increased negative pulmonary pressure provides for more blood in the lungs With more blood the area of the shunt is frequently larger and denser than in normal circumstances The angiocardiogram has many uses other than the detection of an arteriovenous shunt in the lungs In this procedure 70 per cent iodopyracet injection is rapidly given intravenously, and, by the proper timing of roentgenograms of the chest, the iodopyracet will make possible visualization of the chambers of the heart and the great vessels It probably will not be used as extensively as it earlier promised

Exploratory Thoracotomy—Better operative techniques, including the use of anesthesia, and the emergence of effective antibacterial substances has enabled the surgeon to reach any portion of the thoracic cavity with about the same risk that he can reach any portion of the abdomen In the past there has been little or no hesitancy to enter the abdomen in order to remove or perform a biopsy on an unknown tumor Similar conditions now prevail for the chest Exploratory thoracotomy is resorted to when all the previously discussed diagnostic procedures fail to determine the nature of a pulmonary lesion¹⁵ This situation most often prevails when the pulmonary lesion is a single, persistent, variable-sized rounded density by roentgenogram (fig 1) Such round lesions in the order of frequency of their occurrence in our experience, are tuberculoma, carcinoma and fluid-filled cyst More rarely the following lesions occur: coccidioidomycosis, noncalcified tuberculous lymph node, lymphoma, sarcoid, neurofibroma and hamartoma Biopsy or removal of all these lesions has been successfully done with the protection afforded by antibacterial substances especially streptomycin which should always be used Even a long-standing lesion of coccidioidomycosis can be removed with minimum danger¹⁶ Conditions not mentioned for which an exploratory thoracotomy has been done with some frequency include chronic lung abscess and chronic pneumonitis The surgical procedures accomplished after the lung is entered may be simple biopsy, removal of a segment of the lung, lobectomy or pneumonectomy

12 Craver, L. F. Diagnosis of Malignant Lung Tumors by Aspiration Biopsy and by Sputum Examination. *Surgery* 8: 947-960 (Dec.) 1940

13 Ochsner, A., DeBakey, M., and Dixon, J. L. Primary Cancer of the Lung. *J. A. M. A.* 135: 321-327 (Oct. 11) 1947

14 Makler, P. T., and Zion, D. Multiple Pulmonary Hemangiomas. *Am. J. M. Sc.* 211: 261-266 (March) 1946. Goldman, A. Arteriovenous Fistula of the Lung: Its Hereditary and Clinical Aspects. *Am. Rev. Tuberc.* 57: 266-280 (March) 1948. Cooley, R. N., Bohnson, H. T., and Hanlon, C. R. Angiocardiography in Congenital Heart Disease of Cyanotic Type with Pulmonic Stenosis or Atresia. *Radiology* 52: 329-346 (March) 1949

15 Grow, J. B., Bradford, M. L., and Mahon, H. W. Exploratory Thoracotomy in the Management of Intrathoracic Disease. *J. Thorac. Surg.* 17: 480-494 1948

16 Greer, S. J., and Grow, J. B. Surgical Lesions of Pulmonary Coccidioidomycosis. *Dis. of Chest* 16: 336-353 (Sept.) 1949

9 Banja, A. L. *Pneumoperitoneum Treatment*, St. Louis, C. V. Mosby Company, 1946

10 Alexander, J. *The Collapse Therapy of Pulmonary Tuberculosis*, Springfield, Ill., Charles C. Thomas Publisher, 1937, p. 202-289

11 Bockus, H. L. *Gastro-Enterology*, Philadelphia and London, W. B. Saunders Company, 1946, vol. 1, p. 84

The work depends on the nature of the lesion and the judgment of the surgeon. Exploratory thoractomy is undertaken with provisions for any eventuality in much the same manner as is the exploration for a tumor of the breast. The decision to explore should be made with the advice and help of the thoracic surgeon.

DIAGNOSIS OF THE MORE IMPORTANT DISEASES

Tuberculosis—A definite diagnosis of tuberculosis is not made clinically until the tubercle bacillus is found or the pathologic lesion is seen under the microscope. The physician may feel certain of the diagnosis without being able to demonstrate the tubercle bacillus, as in a typical lesion of the upper lobe with a cavity in a young adult who has a positive reaction to a tuberculin skin test or in a parenchymal lesion of the upper lobe which appears on serial roentgenograms and shows two or more demarcated areas of variable shades of density (fig 2B). In such circumstances a tentative diagnosis is made and treatment instituted. Because a diagnosis of tuberculosis means a long term period of treatment if the disease is active and many years of observation if the disease is arrested, a positive diagnosis is most essential. Serofibrinous pleurisy with effusion



Fig 1—Roentgenogram of the chest of a 33 year old salesman with cough and a slight amount of sputum showing round lesions in the lower lobe of the left lung. Results of diagnostic studies were normal except for a positive reaction to a tuberculin skin test. Exploratory thoractomy with lobectomy of the lower lobe of the left lung was done. The rather firm lesions in the lobe were later determined to be non-specific, probably cholesterol pneumonitis.

is usually an acute process and should be considered tuberculous in origin.¹⁷ If, in a young person who has had a negative reaction to a tuberculin skin test, the reaction becomes positive at about the same time that a pulmonary lesion demonstrable by roentgenogram develops, there is strong presumptive evidence that the lesion is tuberculous. In a person who is acutely ill with tuberculosis the tuberculin skin reaction will rarely be negative, but in such instances it is almost always possible to obtain the tubercle bacillus from the sputum or gastric contents. There will be many lesions that suggest tuberculosis from the roentgenographic appearance but in which the tubercle bacillus cannot be found. If such a lesion persists over a period of many weeks without much change, atypical or virus pneumonia can be eliminated. Carcinoma, coccidioidomycosis, bronchi-

ectasis, chronic lung abscess, bullous emphysema or cystic disease may involve the upper lobe of either lung and be readily confused with tuberculosis. In such instances bronchiectasis and chronic lung abscess will often be suspected after the patient has an acute respiratory infection. When this happens, the area of

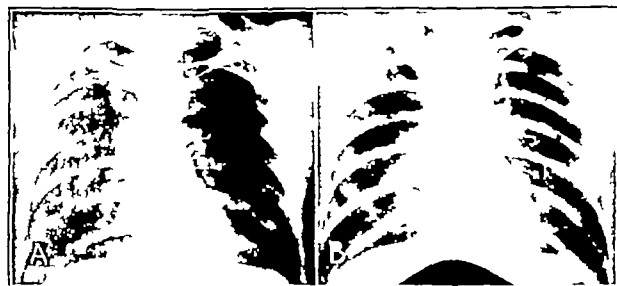


Fig 2—Roentgenograms of the chest of a 20 year old man. A roentgenogram showing the lesion found in the apex of the right lung during a check up after a cold. The patient was told that the lesion should be watched with further roentgenograms. B roentgenogram made five months later showing the condition which often develops when a pulmonary lesion is watched instead of diagnosed. There is bilateral moderately advanced tuberculosis.

bronchiectasis or abscess may become active and moist and crepitant and subcrepitant rales may be heard (fig 3). A bronchogram can then be made and, if properly interpreted, the true nature of the lesion can be determined. The other conditions will be discussed later. The judgment of an expert in pulmonary diseases should be sought for the lesions in which a definite diagnosis cannot be made. As has been indicated before, the safest and best plan is to consider all pulmonary lesions tuberculous until proved otherwise.

This is especially true if a vigorous, intelligent program has been followed pursuant to a diagnosis. A total of 1577 patients with an initial diagnosis of pulmonary tuberculosis were examined at Fitzsimons General Hospital in 1948. Of these, 192, or about 12 per cent, were found not to have tuberculosis. The rather large number of patients in whom no pulmonary disease was found is of interest. The accompanying table shows the final diagnoses in these 192 patients, who were originally thought to have tuberculosis from the roentgenographic findings. A healed, usually calcified, primary tuberculous lesion in the lung, called a Ghon focus, is a small rounded area generally less than a centimeter

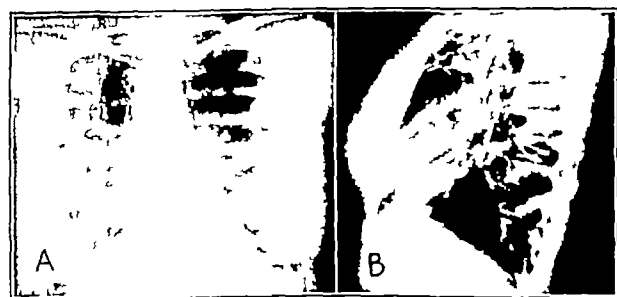


Fig 3—Roentgenograms of the chest of a 22 year old woman with a history of cough and expectoration of many years duration. A prominent trunk shadow into the apex of the right lung were diagnosed as tuberculosis. Cultures of the sputum and gastric contents were repeatedly negative for the tubercle bacillus. B after a cold the patient had mucous and subcrepitant rales. The condition was diagnosed as bronchiectasis by bronchogram. The patient was apparently cured by lobectomy.

in diameter. This constitutes the so-called "spot on the lung" of older writers. Because this lesion is seldom serious, many physicians have erroneously assumed that any small pulmonary density in the roentgenogram can

17. Barnwell J B and Cecil R L. A Text Book of Medicine. Philadelphia and London: W B Saunders Company, 1947, p 977. Pinner Max. Pulmonary Tuberculosis in the Adult. Its Fundamental Aspects. Springfield, Ill: Charles C Thomas Publisher, 1945, p 247.

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be viewed with complacency. It is important to emphasize that the majority of patients with early minimal tuberculosis are entirely symptom free, and yet the lesions must be considered active.¹⁸ Experience has shown that such lesions are potentially progressive and that they often are the forerunners of advanced and destructive tuberculosis (fig 2).

Carcinoma—It should be noted that not much was said in the paragraph on tuberculosis about the age levels at which tuberculosis is usually discovered. Active tuberculosis in mass roentgen surveys is found at all ages. On the other hand, cancer continues to be a disease largely of middle or old age.¹⁹ Therefore, if a pulmonary lesion is discovered in a young adult, it is not likely to be cancer, even though bronchogenic carcinoma can arise in any part of the lung at any age. The roentgenographic appearances of bronchogenic carcinoma and tuberculosis may be similar at certain stages of the two diseases (fig 4). Frequently it is necessary to carry out simultaneous studies for the diagnosis of carcinoma and tuberculosis. An early diagnosis of cancer is vital. Whereas the statement has been made that tuberculosis is primarily suspected

always have a characteristic history of repeated chest colds frequently complicated by pneumonia. Many have a persistent cough with or without sputum. Hemoptysis is a common occurrence. The sputum should be checked for the tubercle bacillus by culture.

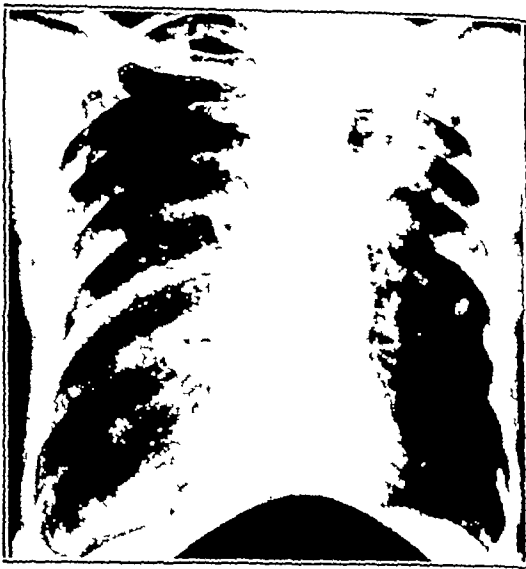


Fig 4—Roentgenogram of the chest of a 38 year old man showing bronchogenic carcinoma simulating tuberculosis.

Final Diagnosis in 192 Patients with What Was Originally Diagnosed as Pulmonary Tuberculosis

Final Diagnosis	No. of Patients
Fibrosis and emphysema (including chronic bronchitis and asthma)	47
No pulmonary disease found	38
Bronchiectasis	16
Bullous emphysema, cystic disease, spontaneous pneumothorax	15
Fungus infections	11
Chronic nonspecific pneumonitis and atelectasis	9
Acute infectious bronchitis, lung abscess, pneumonia	9
Silicosis	8
Chronic lung abscess and chronic encapsulated empyema	8
Atypical pneumonia	6
Circulatory changes (chronic passive congestion)	6
Bronchogenic carcinoma	4
Sarcoidosis	4
Leukemia, polycythemia, collagen diseases, eosinophilic pneumonia (Loeffler's syndrome)	4
Lesions of the thoracic cage	3
Metastatic carcinoma	2
Diaphragmatic hernia	2
Lymphoma	1
Arteriovenous aneurysm	1
Total	192

If none is found, bronchoscopic examination and a bronchogram should be made, after which procedures the diagnosis is generally clear. Bronchiectasis is found mostly in the lower lobes, the middle lobe of the right lung or the lingular segment of the upper lobe of the left lung. Occasionally all lobes of one or both lungs are involved, in these instances it is extremely difficult to differentiate bronchiectasis from chronic cystic disease.

Bullous Emphysema and Cystic Disease—Bullous emphysema and cystic disease (emphysematous bleb, pneumatocele, peripheral pulmonary cyst) exist either as a solitary large bulla or multiple smaller bullae.²⁰ A pulmonary bulla appears to arise from the terminal portion of the bronchial tree, the alveolus or the atrium. Bullous emphysema is not infrequently overlooked. Areas of bullous emphysema can be involved in a pulmonary inflammatory process and can then be confused with ordinary pneumonia. After the pneumonia process

in all chronic pulmonary lesions, this attitude should not retard the diagnosis of carcinoma, as has been done perhaps too often in tuberculosis sanatoriums. Cytologic study, by experts, for the detection of malignant cell now enables the physician to obtain a quick and accurate diagnosis in 80 per cent or more of cases of bronchogenic carcinoma. If sputum is not available, early bronchoscopic procedures to obtain bronchial secretions are indicated. A biopsy specimen can be obtained at the same time if a tumor is found. Should the bronchoscopic examination and the cytologic method fail to establish a diagnosis and should the tubercle bacillus not be demonstrated in a person over 30 years of age, exploratory thoracotomy should be considered. The only worth while treatment of bronchogenic carcinoma is pneumonectomy. Considerable palliation can be obtained in inoperable cases by adequate roentgen therapy.

Bronchiectasis—Bronchiectasis is not usually a difficult diagnostic problem. However, bronchiectasis existing only in an upper lobe always poses a problem, as was indicated in the section on the diagnosis of tuberculosis (fig 3). Persons with bronchiectasis nearly

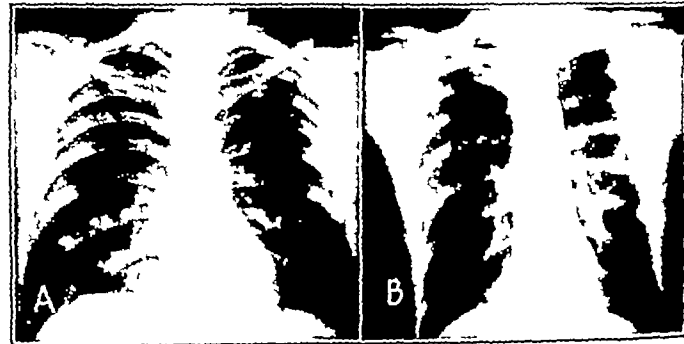


Fig 5—A roentgenogram of the chest of a 23 year old man who lived in the western part of Missouri showing histoplasmosis. Tuberculin skin reactions were repeatedly negative but reactions to histoplasma skin tests were positive. B roentgenogram showing lung cyst.

subsides, the thickening of the walls of the bullae may persist, and the condition is often confused with tuberculosis. A differential diagnosis is seldom made unless the condition is found incidentally during thoracotomy.

18 Amberson, J. B., Jr. The Lasting Cure of Early Pulmonary Tuberculosis. J. A. M. A. 109: 1949-1952 (Dec. 11) 1937.
19 Gibbon, J. H., Jr., Clerf, L. H., Herbut, P. A., and De Turk, J. J. The Diagnosis and Operability of Bronchogenic Carcinoma. J. Thoracic Surg. 17: 419-427 (Aug.) 1948.

20 Amberson, J. B., Jr. and Spain, D. M. A Mechanism Explaining Chronic Progressive Pulmonary Bullous Emphysema. Tr. A. Am. Phys. cians 60: 92-101, 1947.

or at autopsy The rupture of a single bulla which may be too small to see in a roentgenogram on the surface of the lung is thought to be the principal cause for the occurrence of spontaneous pneumothorax in an otherwise normal lung²¹ A pulmonary cyst is considered to be an arrested development of the terminal portion of a bronchus²² The cyst is lined with bronchial epithelium which may or may not secrete a serous fluid Pulmonary cysts may be single or multiple and of varying size, up to one that occupies most of the thoracic cavity A pulmonary cyst that contains air may be confused with a tuberculous cavity (fig 5) A pulmonary cyst that contains part air and part fluid or is wholly filled with fluid may be confused with a chronic lung abscess, tuberculosis or encapsulated empyema A cyst filled with fluid may be aspirated several times, and the fluid may reappear This condition suggests the diagnosis Cysts usually show up deeper in the parenchyma of the lung than does bullous emphysema, which, when recognized, is more likely to be peripheral Pulmonary cysts are frequently suspected from their roentgenographic appearance Single pulmonary cysts are best excised

Pneumocomiosis—The list of industrial inhalants which produce changes in the lungs detectable on the roentgenogram is long²³ Of these, silica, which produces silicosis, is so far the most important The essential feature in the diagnosis of any industrial inhalant disease is a history of exposure Depending on the stage of development, the roentgenographic appearance of silicosis is more or less definite, although it must be differentiated from military tuberculosis metastatic carcinoma which has spread through the pulmonary lymphatics, the fungus infection histoplasmosis and siderosis²⁴ If a diagnosis of silicosis is established and the involvement is not symmetric, care should be taken to rule out the presence of the tubercle bacillus, which sooner or later complicates most cases of silicosis Uncomplicated silicosis will exhibit much less involvement of both lung bases Another industrial inhalant disease, berylliosis, has become somewhat prevalent in recent years²⁴ Beryllium, which produces berylliosis, is used in fluorescent lamps The roentgenographic signs of berylliosis are not as yet fully established

Atypical Pneumonia—A few persons have atypical or virus pneumonia without acute symptoms The disease may then be discovered through survey roentgenograms or through a roentgenogram taken because of vague pulmonary complaints In these circumstances the roentgenographic appearance of virus pneumonia is most likely to be confused with that of tuberculosis Frequent serial roentgenograms will aid in the differential diagnosis by permitting visualization of changes in the shape and location of the parenchymal infiltration, which can be present as long as six to eight weeks By the time the virus pneumonia has been present for a few weeks, cold agglutinins can generally be demonstrated in the patient's serum Their presence is not specific for virus pneumonia but strongly suggests the diagnosis

Fungus Diseases—The organisms which cause coccidioidomycosis are sharply confined in their geographic distribution to the southwest portion of the United States²⁶ A person who has never been in this part of the country will not have coccidioidomycosis The organisms which produce histoplasmosis have a much wider distribution but in this country are most prevalent in a central belt which extends from Kansas City, Kan., to the Atlantic Coast²⁷ A repeatedly negative reaction to a skin test with coccidioidin or histoplasmin rules out the respective disease, with the limitations discussed in the section on skin tests A positive reaction to a coccidioidin or histoplasmin skin test with a negative tuberculin reaction is strong presumptive evidence that the pulmonary lesion is coccidioidomycosis or histoplasmosis, as the case may be The organisms which produce these two diseases are difficult to find by culture except early in the course of the disease In cases in which these diseases are suspected, an effort to culture the organisms should be made if sputum is present Both diseases produce antibodies, and studies should be made for them, as indicated previously On many occasions the physician will be confronted with a situation in which the reaction to the coccidioidin or histoplasmin skin test as well as to the tuberculin skin test is positive and in which no organisms can be demonstrated in the sputum nor any antibodies in the blood The roentgenographic appearance of coccidioidomycosis and histoplasmosis (fig 5) mimic that of tuberculosis closely When there is hilar or mediastinal lymphadenopathy combined with a tuberculous-like peripheral lesion, the evidence then points to coccidioidomycosis or histoplasmosis²⁸ In certain cases the diagnosis will remain in doubt unless in the judgment of competent observers an exploratory thoracotomy seems indicated

Chronic Suppurative Lung Diseases—Chronic lung abscess is usually a sequela of acute lung abscess The acute disease may have been undiagnosed Chronic lung abscess can exist for years without serious consequences to the patient The course of chronic lung abscess is characterized by remissions and exacerbations²⁹ The exacerbations frequently are associated with infections of the upper part of the respiratory tract, and it is at such times that the true nature of the disease is suspected Sputum cultures which are negative for the tubercle bacillus and for fungi, physical examination of the lung and bronchoscopic and bronchographic examination will generally establish the diagnosis The roentgenographic appearance of chronic lung abscess and chronic suppurative lung disease are fairly definite The former, when typical, shows a cavity, a persistent fluid level and a thick or thin wall The latter may show thickened trunk shadows, some peribronchial inflammation, patches of localized atelectasis and increased density of hilar shadows The use of penicillin and sulfadiazine usually produces rapid amelioration of such symptoms as fever, cough and sputum The treatment of chronic lung abscess is excision, as a rule by lobectomy Chronic empyema is sometimes associated with chronic lung abscess, or it may occur alone

21 Clagett O T Surgical Treatment of Emphysematous Blebs and Bullae, *Dis of Chest* 15:669-681 (June) 1949 Niehaus R F Simple Spontaneous Pneumothorax in Apparently Healthy Individuals Report of 24 Cases, *Am J Roentgenol* 57:12-27 (Jan) 1947
22 Norris G W and Landis H R M Diseases of the Chest Philadelphia and London W B Saunders Company 1938 p 562
23 Johnstone R T Occupational Medicine and Industrial Hygiene St. Louis C V Mosby Company, 1948
24 Machle W Beyer E and Gregorius F Berylliosis, *Occup Med* 5:671-683 (June) 1948
25 Reimann H A Viral Pneumonias and Pneumonias of Probably Viral Origin *Medicine* 26:167-219 (May) 1947

26 Smith C E Coccidioidomycosis *M Clin North America* 27:790-807 (May) 1943

27 Palmer C E Geographic Differences in Sensitivity to Histoplasmin Among Student Nurses *Pub Health Rep* 61:475-487 (April 5) 1946

28 Clark D and Gilmore J H A Study of 100 Cases with Positive Coccidioidin Skin Test *Ann Int Med* 24:40-59 (Jan.) 1946 Furcolow M L Mantz H L and Lewis I The Roentgenographic Appearance of Persistent Pulmonary Infiltrates Associated with Sensitivity to Histoplasmin *Pub Health Rep* 62:1711-1718 (Dec. 5) 1947

29 Shaw R R and Paulson D L Pulmonary Resection for Chronic Abscess of the Lung *J Thoracic Surg* 17:514-522 1948 Harper F R Condon W B and Wierman W H Suppurative Disease of the Lungs *Arch Surg* 58:819-832 (June) 1949

There is a history of an acute pulmonary infection which slowly subsided over a period of weeks. The roentgenographic appearance of uncomplicated empyema is fairly distinct. It may be possible to aspirate pus from the empyema. Treatment is surgical, with drainage to the exterior.

Nonspecific Pneumonitis—The pathogenesis of chronic nonspecific pneumonitis is obscure.³⁰ In some instances it may represent a lung abscess that has filled in with granulation tissue. In other cases it may be an area of atelectasis that was infected and later partially fibrosed. The fatty, or cholesterol, changes which occur are probably similar to those seen in many chronic lung diseases. The roentgenographic appearance of chronic nonspecific pneumonitis is not distinct and is confused most frequently with that of tuberculosis and carcinoma (fig 1). The lesion occurs more often in the middle lobe of the right lung or lingular segment of the upper lobe of the left lung than elsewhere. When this lesion is suspected in persons over 30 years of age, it is best that surgical exploration with the object of removal be done, because the lesion might be malignant.

Atelectasis—This may involve all or part of a lung and is usually an acute process. On occasion, during

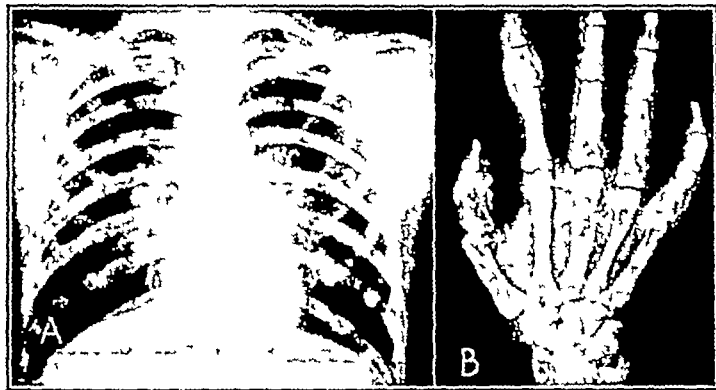


Fig 6—Roentgenogram of the chest of a 17 year old Negro boy showing typical sarcoid. The diagnosis was further confirmed by biopsy of cervical lymph nodes.

attacks of asthma, bronchitis or infection of the upper part of the respiratory tract, a bronchus may become plugged with mucus or inflammatory exudate, with collapse of that portion of the lung distal to the bronchus, in which the process may be chronic. For one reason or another, the area of atelectasis may require some time to become aerated. The roentgenographic appearance and behavior are not unlike those of atypical pneumonia except that if the atelectatic area is large enough it will cause mediastinal shift or a high hemidiaphragm on the side of the involvement. Serial roentgenograms will generally demonstrate the gradual disappearance of the lesion, usually in a matter of a few weeks. Areas of atelectasis may not always resolve.

Fibrosis and Emphysema—Diffuse bilateral pulmonary fibrosis is seen in older persons, who often have a history of chronic bronchitis.³¹ In some persons there is no prior history of pulmonary complaints. In such patients fibrous tissue seems to form more readily than is normal. The roentgenographic appearance of intensified and distorted trunk shadows is typical, but first stage pneumoconiosis should be ruled out. The latter will generally show clearer bases. Pulmonary emphysema

sometimes called hypertrophic emphysema can develop under any circumstances in which all or a portion of the lung is chronically overly distended. It will also develop if the pulmonary blood supply is diminished and in older persons as part of the aging process. The roentgenographic appearance is distinct showing increased radiability and flattened hemidiaphragm. Bullous emphysema or cystic disease can be confused with hypertrophic emphysema.

Sarcoidosis—Sarcoidosis is a systemic disease with frequent pulmonary manifestations.³² The typical pathologic process involves the lymph nodes in the thoracic cavity and the lungs. There may be a few or no symptoms. The roentgenographic appearance is that of hilar or mediastinal adenopathy and occasionally, irregular patchy infiltration in one or both lungs (fig 6). If there is no bone or skin involvement in a patient with sarcoidosis the disease may be suspected if there is an elevation of the serum proteom. The diagnosis is made by means of biopsy of a superficial or intrathoracic lymph node. Sarcoidosis is confused with tuberculosis, lymphoma, carcinoma, coccidioidomycosis and active histoplasmosis. In sarcoidosis the reaction to the tuberculin skin test is frequently negative.

Lymphomas—Of the group of diseases classified under the term lymphomas, Hodgkin's disease is the most common.³³ The disease involves the lymph nodes of the hilar structures and the mediastinum. The problem of the diagnosis of lymphomas is similar to that of sarcoidosis, including the roentgenographic characteristics. However with a lymphoma there is less chance that the parenchyma will be involved. The diagnosis is made by biopsy of an involved lymph node. The lymphomas are sensitive to the effects of roentgen therapy and in some instances shrink rapidly when it is applied. This procedure has been used as a diagnostic test but is unreliable. The rapidity with which the various lymphomas shrink under roentgen therapy varies considerably. Most persons prefer to have definite knowledge about such a potentially serious disease and for this group exploratory thoracotomy can provide the answer without unwarranted risk.

Metastatic Neoplastic Disease—Metastatic carcinoma discovered in the roentgenogram of the chest without evidence of a cancer elsewhere is rare. The usual roentgenographic appearance of a metastatic carcinoma is that of multiple round or nodular lesions the size of a pea or larger throughout the lung fields. With this observation it is usually not difficult to locate the primary carcinoma. Infrequently a carcinoma will metastasize to the lungs through the pulmonary lymphatics and be first discovered in the roentgenogram of the chest. The pattern of this type of spread is readily confused with that of hematogenous tuberculosis, histoplasmosis, siderosis and pneumoconiosis. Metastatic carcinoma develops in the interstitial tissues of the lungs and for this reason does not shed cells into the bronchi as readily as does bronchogenic carcinoma. The procedure of finding malignant cells in the sputum or bronchial washings is not particularly rewarding in this condition. The diagnosis is frequently not made until late in the course of the disease. In our

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31 Miller, J. A. Pulmonary Fibrosis and Emphysema, *Ann Int Med* 9: 219-233 (Sept.) 1935.

32 Christie, R. V. Elastic Properties of Emphysematous Lungs and Their Clinical Significance, *J Clin Investigation* 13: 295-321 (March) 1934. Kountz, W. B. and Alexander, H. L. Emphysema. *Medicine* 13: 251-316 (Sept.) 1934.
33 Reisner, D. Boeck's Sarcoid and Systemic Sarcoidosis (Boeck-Schaumann Disease). Study of 35 Cases. *Am Rev Tuberc* 49: 289 (April) 437 (May) 1944.
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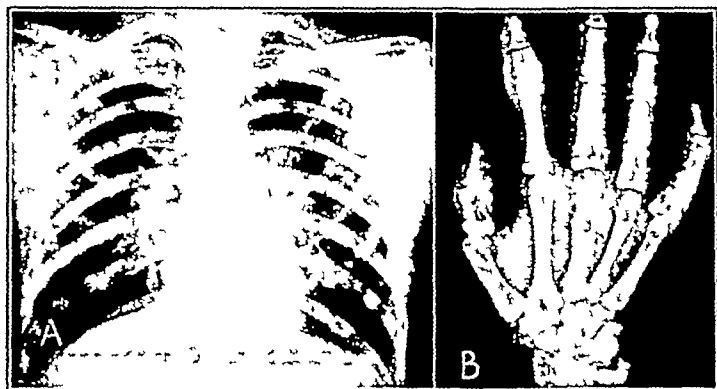


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the ampulla of Vater, where a constriction was seen. The pancreatic duct and the common duct joined at this location (fig 3). There was partial obstruction at the site of junction of the common duct with the pancreatic duct with the dye appearing in the duodenum ten minutes after injection.

Cholecystoduodenostomy and cholecystostomy were performed October 31. On the sixth postoperative day jaundice was

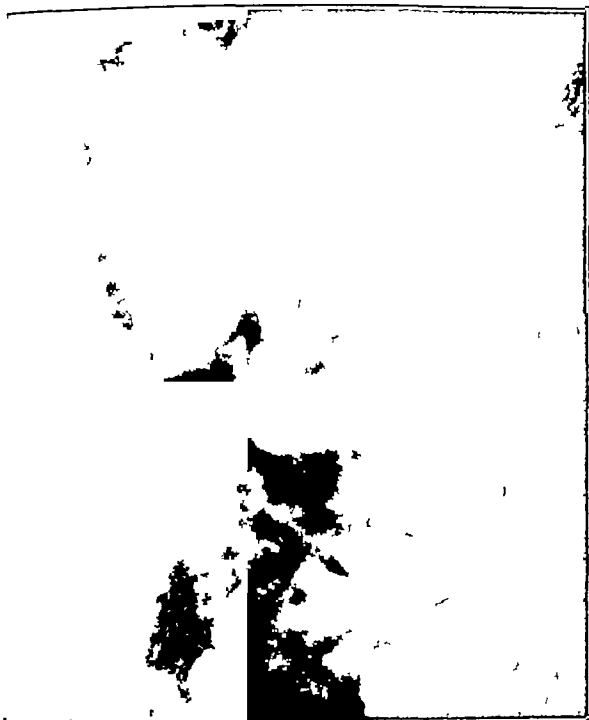


Fig 3 (case 1)—Cholangiogram made at operation revealing enormous distention of the biliary tree and the gallbladder. The union of the common duct with the pancreatic duct before entrance into the duodenum may be seen. Some dye has passed through the pylorus and is present in the duodenum.

noticeably less, and it had cleared completely by the tenth day. The cholecystostomy tube was clamped on the thirteenth postoperative day, and the tube was removed and the patient discharged on the twenty-first postoperative day. The patient is free of symptoms and has no evidence of jaundice at the time of writing, thirteen months after operation.

CASE 2—Retained Stone in the Common Duct and "Regenerated" Gallbladder—H. H., a 41 year old woman was admitted to the New York Post-Graduate Hospital on April 6, 1948 with recurring attacks of pain in the right upper abdominal quadrant radiating to the back, nausea and vomiting.

The history on admission revealed that the patient had had a cholecystectomy done elsewhere fifteen months previously and has had recurrent attacks of pain in the right upper quadrant, nausea and vomiting since. There had been no jaundice, dark urine or clay-colored stools. Roentgenograms outlining the gallbladder were taken before the present admission. The blood pressure on physical examination was 130 systolic and 90 diastolic. The patient was a well developed and fairly well nourished, middle-aged white woman. There was a well healed paracostal scar in the right upper quadrant and tenderness to palpation throughout the right upper quadrant. The impression was that of "regeneration" of the gallbladder (from the history and the roentgenograms).

Laboratory examination revealed the following conditions: icterus index 48 units, bilirubin, slight trace, cholesterol, 220 mg per hundred cubic centimeters, cholesterol esters, 96 mg per hundred cubic centimeters, cephalin cholesterol flocculation test reaction, negative, thymol turbidity, 2 units, alkaline phosphatase, 30 Bodansky units, total serum protein, 7.8 Gm. per hundred cubic centimeters, amylase, 209 Gm. per hundred cubic centimeters, and lipase, 0.2 cc of twentieth-normal solution of sodium hydroxide. The urine was normal,

and a culture of the bile from the gallbladder was negative. Reactions to tests made on a bile specimen obtained at operation showed amylase negative, lipase, negative, protease, negative, cholesterol 480 mg per hundred cubic centimeters, bile salt, 1768 mg per hundred cubic centimeters and bilirubin 65 mg per hundred cubic centimeters.

The patient underwent operation on April 8. The gallbladder remnant was the size of a small gallbladder. The common bile duct was moderately distended but no stones were palpable.

Twenty cubic centimeters of iodopyracet injection was introduced into the gallbladder after 15 cc. of bile had been aspirated. A roentgenogram was taken which showed the gallbladder to be distended, with no negative shadows and poor filling of the common duct. Some of the dye was seen to have entered the small intestine. The outline of the common duct was not visible. The gallbladder dye was then removed. The common duct was aspirated, and 10 cc. of reddish-hued bile with considerable detritus was obtained. This was replaced with 15 cc. of iodopyracet injection. A roentgenogram revealed the outline of the common duct, which had a negative shadow at the lower end. The sphincter was normal. The gallbladder was freed to the cystic duct. The common duct was opened and a small brown stone was removed from the lower end. A Blake forceps passed freely into the duodenum. The gallbladder was removed and a T tube was inserted into the common duct.

The postoperative course was uneventful and afebrile. On April 9, eleven days after the operation, a repeat cholangiogram was done. Filling was rapid and complete. No stones or strictures were seen. At ten minutes the roentgenogram showed emptying of the biliary tree. The patient was discharged on the fourteenth postoperative day and is perfectly well at the time of writing, one and a half years after operation.

CASE 3—Cystic Duct Remnant Producing Obstruction of the Common Duct—V. P., a 42 year old woman was admitted to University Hospital on May 9, 1949 with severe epigastric pain. This had been present ever since a cholecystectomy which had been done two years previously. The patient had had epigastric pain following meals and occasional attacks of nausea and vomiting. One week before admission she had jaundice, clay-colored stools and dark urine. There was no weight loss.

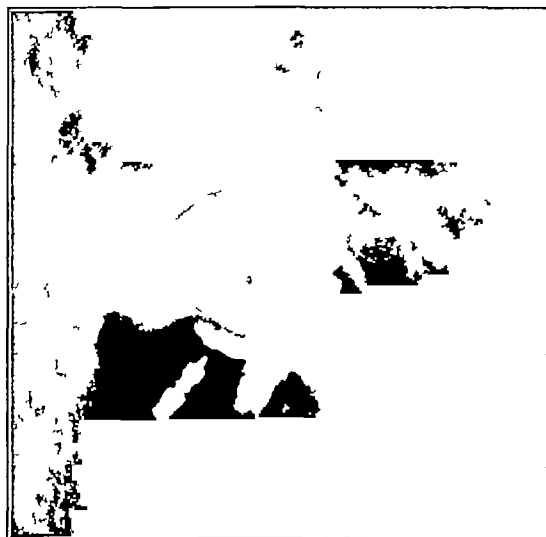


Fig 4 (case 3)—Cholangiogram made at operation showing the needle in the common duct. The distention of the common duct above the point of entry of the cystic duct remnant which crosses the common duct and enters it on the left side producing obstruction may be seen. A small stone found in the cystic duct remnant was not visualized in this roentgenogram.

Physical examination showed the blood pressure to be 130 systolic and 74 diastolic. The patient was a chronically ill, slightly built, middle-aged woman with no evidence of icterus. There was a well healed right rectus scar. There was slight epigastric tenderness (the only abnormal condition) but no rigidity. The first impression was that of a stone in the common duct.

usually there was not unanimous agreement when the discussion was over. Diagnoses such as eczematized psoriasis, psoriasiform neurodermatitis, eczematized drug eruption or probable early lymphoblastoma (of unknown type) would be the suggested and often the final diagnosis.

The usual clinical picture was that of a generalized lichenified or eczematous eruption of several years' duration, usually with darkening of the skin. However, in a Negro there was depigmentation. Often there was loss of hair, especially of the scalp and axillas. Frequently there were changes in the nails, with thickening and discoloration and subungual thickening and hyperkeratosis. The pathologic changes in the skin varied tremendously but were usually not typical of any particular dermatosis. For instance, if the infiltrate suggested lichen planus, there would be no washing out of the basal cell layer or hypergranulosis. If the histologic appearance suggested psoriasis, the suprapapil-



Section of a biopsy specimen from a lymph node in the patient in case 4 showing changes identical to those observed in the other 3 patients: disorganization of normal structure, hyperplasia of the reticulum cells and the presence of considerable melanin and lipid material and many eosinophils.

lary plates would not be thin, and there would be no Sabouraud-Monro abscesses or exocytosis. If the histologic appearance suggested neurodermatitis, there would be spongiosis and even vesicle formation, though clinically it could not be described as pityriasis rosea or nummular eczema. However, there were certain features present in most cases. There was decided pigmentation of the basal cell layer and often of the prickle cell layer also, although in a Negro with pronounced depigmentation, this was absent. In all the cases there was considerable melanin in the upper part of the cutis, either lying free or, more usually, in melanophores. Eosinophils were often found in the infiltrate of the upper part of the cutis, and frequently there was eosinophilia.

The histologic changes in the lymph nodes were constant and correspond closely with those reported by

Pautrier and Woringer. There was disorganization of the normal structure of the nodes, though this was usually spotty. In these areas the lymph sinuses were dilated, and often empty. There was proliferation of the reticular tissue, and many eosinophils and histiocytes were present. Melanin was present in large amounts, both free and in melanophores. No Sternberg Reed cells were noted. Fat stains showed considerable lipid material.

REPORT OF CASES

CASE 1—B. S., a 68 year old white man was transferred to the Los Angeles County Hospital from another hospital in 1939 with a diagnosis of generalized melanocarcinoma of unknown origin. The melanocarcinoma was believed to have arisen from a metastasizing tumor of the bowel. This diagnosis was based on lymph node and skin biopsies. On admission to the Los Angeles County Hospital, it was learned that the patient had had a generalized, shiny, smooth, bronze pigmentation of the entire body for many years following some unknown dermatitis. In the few months prior to his admission this pigmentation had greatly increased, and the patient had been losing weight and was generally failing in health. Examination showed thickening of the skin on the palms and soles, complete absence of hair in the axillas and some thinning of the pubic hair. His nails were thickened and roughened and had some tendency toward being spoon-shaped. There were many small, discrete, firm lymph nodes palpable in the neck, axillas and groin. These varied in diameter from about 1 to 1.5 cm. Before a diagnosis could be established, the patient died of uremia. Autopsy revealed typical observations of hypertensive and arteriosclerotic heart disease and advanced nephrosclerosis, with death from uremia. In addition the following pertinent observations were made:

There was, in the inguinal lymph nodes, a definite increase in the number of reticulum cells, clear cells with well demarcated nuclei and reticulated cytoplasm. These cells were found infiltrating the pulp sinuses and encroaching on the lymphoid follicles. There was some increase in the amount of fibrosis but the striking feature was the presence of golden brown to black pigment scattered diffusely throughout. Special stains revealed this pigment to be melanin.

Several sections of lymph nodes from other regions showed a picture similar to that just described, except that fibrosis was much more pronounced and there was a decided increase in the amount of melanin present. A fat stain showed a considerable number of fat globules scattered throughout the nodes.

The skin was definitely atrophic, with thinning of all the layers. The prickle cell layer and especially the basal cell layer were densely infiltrated with melanin. In the corium there were many melanophores filled with pigment, as proved by silver stains.

In the liver, the central veins were somewhat thickened, and there was moderate red atrophy, with bile staining of the liver cords around the central veins. Silver stains showed dense melanin pigmentation throughout, especially around the central veins.

In the spleen, the follicles were atrophied and poorly demarcated from the pulp. The sinusoids were dilated and empty, and the lining cells were much more plainly visible than usual. There was a moderate amount of amorphous scattered black pigment. In the adrenal glands special stains showed the presence of many fat droplets in the cytoplasm of the cells.

CASE 2—H. A., a 68 year old white man, was first seen in the Skin Clinic of the Los Angeles County Hospital in September 1939. At that time he had a palm sized patch of scattered lichenoid lesions on the lower medial aspect of the left leg and a crusted patch on the upper part of the left leg. He also had a violaceous indurated patch on the dorsum of his hand. These lesions were thought to be neurodermatitis. A biopsy specimen taken from the dorsum of the hand showed an accumulation of round cells suggestive of lichen planus immediately beneath the epidermis. There was also a suggestive lesion on the tongue.

In December 1939 the patient was seen in the Skin Clinic with a superimposed cellulitis of the right leg. This cleared quickly, but the lichenified lesions still persisted. Biopsy of the hypertrophic patch on the leg was done, and the pathologic changes were reported as being suggestive of chronic eczema rather than lichen planus.

In January 1940 the patient was admitted to the hospital as there was no response to treatment, which had included use of a tar paste and bismuth hydroxide. The skin of the face and extremities was erythematous, and there were lichenified lesions on the back. The patient complained bitterly of itching. The diagnosis was chronic eczematoid dermatitis. In spite of local applications of bismuth hydroxide, crude coal tar pastes and Unna paste boots, the itching persisted and the skin lesions progressed, becoming generalized, with thickening, redness, some scaling and lichenification. On March 5 it was noted that the inguinal and axillary lymph nodes were enlarged, and the patient's temperature rose to 101 F to 102 F. The spleen and liver were not palpable, but a diagnosis of lymphoblastoma was suggested. Results of tests of the blood are shown in the accompanying table.

Biopsy of an inguinal lymph node was done on March 12. There were changes in structure, including almost complete obliteration of the architecture of the cortical structures. Proliferation of the reticulum cells was prominent, and there were great quantities of plasma cells and eosinophils. The diagnosis was not certain, but it was thought that the patient might possibly have a lymphoblastoma, perhaps an unusual form of Hodgkin's disease, or, possibly, chronic lymphadenitis.

Results of Tests of the Blood in a Patient with Lipomelanin Reticulosis

Date	Hemoglobin	Red Blood Cells	Color Index	White Blood Cells	Polymorphonuclear Cells †	Lymphocytes †	Monocytes †	Eosinophils †	Basophils †	Platelets
1/31/40	100	5,200,000	1	7,800	67	18	8	7		
3/9/40	91	5,970,000	0.92	9,400	52	23	9	11		Normal
3/27/40	85	4,100,000	1.11	15,200	38	21	7.5	13	1.5	Normal
6/27/40	81	4,420,000	0.98	11,200	31.5	24	11.5	31.5	1.5	Normal

* Grams per hundred cubic centimeters

† Percentage

A roentgenogram of the chest showed scattered patchy infiltrations in the upper halves of both lung fields with a questionable cavity in the right apex. This was thought consistent with far advanced pulmonary tuberculosis, partly productive and partly exudative in type. Because of this the patient was transferred to the tuberculosis service. Here all studies for acid fast bacilli were negative, and there was little sputum.

The skin lesions became worse, and itching was intolerable. The axillary, inguinal and epitrochlear nodes became easily palpable and firm, and, because of the inactivity of the tuberculosis, the patient was again transferred to the skin service on May 10. There a tentative diagnosis of lymphoblastoma, Hodgkin's disease or mycosis fungoides was made. Examination of an axillary node removed on April 22 showed that the normal structure was considerably disorganized chiefly by decided hyperplasia of the reticuloendothelial cells. Many eosinophils were present, and numerous reticulum cells contained granules of brown pigment. This was probably an example of pigmentation.

Biopsy of skin from an eczematoid area on the arm was done on April 26. Examination of a section revealed a focal granulomatous infiltrate in the upper part of the cutis; it did not seem to be of tuberculous origin but might well have been a lymphoblastoma of the type of mycosis fungoides.

In the next two months most of the inflammation and thickening improved, but the skin underwent a remarkable pigmentation resembling that seen in Addison's disease. The nodes remained enlarged. The spleen and liver were not palpable and there was eosinophilia.

Biopsy of an axillary node was done on June 24. Severe hyperplasia of the reticulum cells and moderate hyperplasia of the lymphoid follicles was observed. There were many eosinophils and plasma cells throughout and many reticulum cells were filled with brown pigment. The histologic appearance was consistent with that of so-called lipomelanin reticulosis. Fat stain showed many fine droplets and melanin stain showed black deposits in the reticulum cells.

Biopsy of skin from the thigh was done on July 13. The report indicated probable lymphoblastoma of psoriasiform histology. Sections stained for iron failed to reveal its presence.

CASE 3—W. D., a 72 year old white man, had the onset of his illness in September 1940, with a severely pruritic rash of the ankles. This rash gradually spread over his entire body, the skin being dry, scaly and intensely pruritic. In January 1941 the skin was dark brown, thick and leathery, with loss of normal turgor. Small lymph nodes were palpable in the cervical, axillary and inguinal areas. On the extremities there were several round, firm, subcutaneous freely movable tumors of a few weeks duration. Two had broken down, and a pus-like fluid had drained from them. The clinical diagnosis was exfoliative dermatitis with generalized lymphadenopathy possibly with lymphoblastoma.

On January 16, tests of the blood showed hemoglobin 13 Gm per hundred cubic centimeters (81 per cent), red blood cells, 4,360,000, white blood cells 21,250, with 64.5 per cent polymorphonuclear cells, 16 per cent lymphocytes, 4.5 per cent monocytes, 14 per cent eosinophils and 1 per cent basophils; color index, 1, and platelets normal. Subsequent tests of the blood gave similar results except for eosinophil counts ranging from 8 to 22 per cent.

The sternal marrow showed increased production of erythrocytes, including eosinophilic myelocytes and metamyelocytes and plasma cells. The impression was one of probable degenerative erythroid changes of secondary nature, rather than malignant change.

The urine contained no melanin or porphyrin.

Biopsy of an inguinal lymph node was done on January 19. There was severe hyperplasia of the reticuloendothelial cells and the presence of brown granular pigment. A diagnosis of lipomelanin reticulosis associated with exfoliative dermatitis was made.

Biopsy of a subcutaneous nodule on an extremity was done on January 26. There was moderate acanthosis of the epidermis with a moderate inflammatory reaction in the upper part of the cutis. A section of the subcutaneous tissue showed conditions suggestive of erythema induratum. A subcutaneous nodule on which biopsy was done February 21 showed conditions suggestive of lymphoblastoma, with one section showing definite panniculitis and a number of eosinophils. Possible leukemia cutis was suggested.

Staphylococcus aureus was present on culture from the pus of a subcutaneous nodule. Laboratory tests showed blood cholesterol, 178 mg, and cholesterol esters, 74 mg per hundred cubic centimeters, icterus index, 6 and albumin, 2.8 Gm and globulin, 2.7 Gm per hundred cubic centimeters. The patient had several roentgen treatments of the skin, with some relief of the pruritus.

CASE 4—C. H., a 24 year old Negro, was admitted to the dermatology ward of the Los Angeles County Hospital in September 1949, at which time he had an itching dry eczematous eruption involving the hands, forearms, genitalia, popliteal areas and dorsal surfaces of the feet. The inguinal axillary and epitrochlear lymph nodes became enlarged; moist eruptions appeared on the feet and behind the knees, and a loss of axillary and pubic hair occurred.

A few weeks after admission a decided increase in the size of the lymph nodes occurred; the hair of the entire body began falling and the dermatitis became universal. To the time of writing there had been little change. On a few occasions he had a low grade fever. He was seen in the dental clinic and several extractions were made. Past history revealed a positive Wassermann reaction. Six months of antisyphilitic treatment in 1941 which consisted of weekly injections in the arm and

hip, were given Two Wassermann reactions on this admission were negative

Two albumin-globulin determinations revealed an abnormally low serum albumin level. Routine agglutination was normal. Microscopic examination of an inguinal lymph node removed in November was reported as showing lipomelanotic reticulo-endotheliosis. In January, biopsy of the skin from the scapular area was done. The pathologic changes were reported as neurodermatitis by the pathology department and lymphoblastoma by the dermatology department. Studies of the blood revealed a white blood cell count of 13,800, with 40 per cent eosinophils, and mild anemia but no evidence of leukemia. Roentgenologic examination of the chest revealed no enlargement of the lymph nodes and showed the lung fields to be clear. Physical examination at the time of writing revealed a young Negro man with total alopecia and severe generalized enlargement of the lymph nodes, which were rubbery but nontender. The entire skin was less pigmented but redder than normal for this person. On the extremities the skin showed lichenification and was hard and tense to palpation. There was severe edema of both legs, and there were thick indurated areas in the popliteal regions. There was definite enlargement of both breasts.

Biopsy specimens of the lymph glands revealed the same changes reported in the previous cases (the accompanying figure)

SUMMARY

1 Four cases are described of the syndrome reported by Pautrier and Woringer as lipomelanotic reticulosis. This is the third report in the American literature, the second report of a case in which autopsy was performed, and the only report in which depigmentation has been associated with the same histologic observations in the lymph nodes.

2 Lipomelanotic reticulosis is a syndrome consisting of a long-standing chronic pruritic dermatosis associated with enlarged lymph nodes and, frequently, eosinophilia. The lymph nodes show the following characteristics: disorganization of normal structure, hyperplasia of the reticulum cells, the presence of considerable melanin and lipid material and often many eosinophils. The chronic dermatosis is often difficult to diagnose definitely, either clinically or histologically, and may include exfoliative dermatitis of different causes, lichenification of various types, chronic eczema, pemphigus and psoriasis.

3 It is important that this harmless syndrome be differentiated from Hodgkin's disease and other lymphoblastomas, with which it is frequently confused. The generalized pigmentation which may be present must be distinguished from other causes of pigmentation.

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Standards, Usefulness, Nonsectarianism—In order that a physician may best serve his patients, he is expected to exalt the standards of his profession and to extend its sphere of usefulness. To the same end, he should not base his practice on an exclusive dogma or a sectarian system, for "sects are implacable despots, to accept their thralldom is to take away all liberty from one's action and thought." A sectarian or cultist as applied to medicine is one who alleges to follow or in his practice follows a dogma, tenet or principle based on the authority of its promulgator to the exclusion of demonstration and scientific experience. All voluntarily associated activities with cultists are unethical. A consultation with a cultist is a futile gesture if the cultist is assumed to have the same high grade of knowledge, training and experience as is possessed by the doctor of medicine. Such consultation lowers the honor and dignity of the profession in the same degree in which it elevates the honor and dignity of those who are irregular in training and practice.—Section I, Chapter II of the PRINCIPLES OF MEDICAL ETHICS of the American Medical Association

SURVEY OF SURGICAL PROCEDURES IN PSYCHONEUROTIC WOMEN

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and

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In no phase of medical practice does one escape the difficult differential diagnostic problems presented by the chronic female psychoneurotic patient with her multiple complaints. One can only surmise the large number of such persons who are subjected to needless medical and surgical procedures through failure of the physician to recognize the underlying psychiatric illness. Therefore it seems important to reemphasize some of the problems presented by this group and to survey a representative number of psychoneurotic women in an attempt to determine the incidence of unwarranted surgical operations.

An approach to this problem is found in the available literature. McGeorge¹ in 1934 studied a group of patients hospitalized for nonorganic mental illness and found that 16 per cent of 132 female patients with hysteria (age range 15 to 35 years) had been subjected to operations which were ill advised, inasmuch as the patients' complaints had a psychogenic basis. In studying the incidence of pelvic surgery in these patients he found that the commonest operation was oophorectomy (occurring in 8 per cent), salpingectomy and hysterectomy had been performed in 7 and 5 per cent, respectively.

In 1936 Bennett and Semrad² studied 100 hospitalized psychoneurotic persons who were admitted with erroneous diagnoses of various organic diseases. One hundred and seventy-nine surgical operations had been performed on 73 patients, an average of 2.4 operations per patient. The authors believed that at least half of these operations were probably unnecessary. Forty-three persons of this series had undergone pelvic operations along with other major and minor procedures.

Macy and Allen³ in 1934, after reviewing 235 cases of chronic nervous exhaustion, showed that 200 patients had undergone a total of 289 separate major and minor operations. Fifty-one per cent of 156 female patients had had pelvic surgery. Strecker⁴ pointed out that 23 per cent of psychoneurotic subjects have operative scars. Friess and Nelson⁵ showed that the number of operations per patient in a group of 179 psychoneurotic persons was persistently higher than in controls (1.6 to 1.1).

In 1939 Johnson⁶ in a series of 100 selected female patients with pelvic complaints of psychogenic origin showed that 25 per cent had had appendectomies and uterine suspensions. These procedures were not all performed to relieve pelvic discomfort, however, when such operations were performed after the onset of the emotional disorder the original conditions were aggravated by further lowering of the vitality, which increased the physical inadequacy. Previous operations on patients whose emotional disturbance centered around a social maladjustment (68 cases) included 13 per cent bilateral salpingectomy, 10 per cent unilateral oophorectomy, 9 per cent bilateral oophorectomy and 7 per cent

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1. McGeorge, J. A. M. J. Australia 2: 777, 1934.

2. Bennett, A. E., and Semrad, E. V. Nebraska M. J. 21: 90, 1936.

3. Macy, J. W., and Allen, E. V. Ann. Int. Med. 7: 861, 1934.

4. Cited by Schwenkenberg, A. J. Texas State J. Med. 35: 634, 1940.

5. Friess, C., and Nelson, M. J. Am. J. M. Sc. 203: 539, 1947.

6. Johnson, W. O. South Surgeon 8: 373, 1939.

hysterectomy Of those whose emotional conflict concerned a sexual maladjustment (32 cases), 9 per cent had undergone hysterectomy, 3 per cent oophorectomy and 6 per cent perineorrhaphy. In 72 per cent of the total series of 100 cases, the patients had been told more than once that a pelvic operation would relieve the symptoms.

Purtell and Robins⁷ recently studied a series of 50 female patients with classic hysteria and determined that these patients averaged four major operations although a control group averaged 1 major operation. Appendectomy had been performed in 72 per cent of the patients with hysteria but only in 28 per cent of the controls, tubo-ovarian operations had been done in 46 per cent of the hysterical subjects and 10 per cent of the controls.

In 1942 Clarke and Ziegler⁸ showed that abdominal surgery in a group of 15 male and 18 female psychoneurotic persons admitted to a mental sanatorium was twice as common as in a control group. The total major and minor procedures per 100 persons was 161 for the female psychoneurotic subjects and 104 per 100 persons for the controls corrected for age.

However, because the majority of the studies in the literature were done ten or more years ago and some were done on patients in mental institutions it seemed of value to determine the incidence of various operations in a representative group of white female chronic psychoneurotic persons seen on an outpatient basis.

MATERIAL AND METHODS

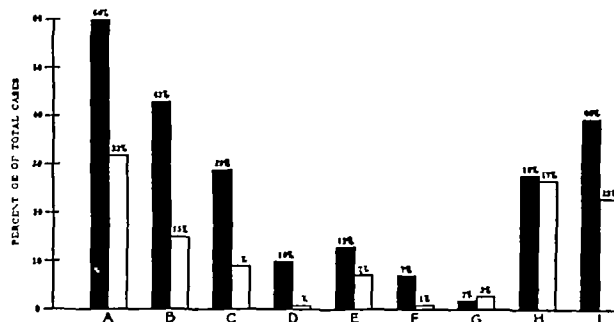
Examination was made of 214 records of female chronic psychoneurotic patients from the Neuropsychiatric Outpatient Clinic of Washington University School of Medicine. Any case was considered chronic which had a duration of symptoms of psychoneurosis for two or more years. This period of time was selected in light of Denker's⁹ large study of insurance disability claims for psychoneuroses in which he showed that patients given erroneous diagnoses of psychoneurosis were given correct diagnoses within one year. He also showed that 73 per cent had a termination of their disability within two years of onset. In the present study only those cases were used in which there was no evidence of physical disease or abnormality sufficient to account for the symptoms on an organic basis. Doubtful cases were eliminated. Every patient had had a complete medical work-up in the Medical Outpatient Clinic as well as psychiatric interviews. These women had a mean age of 37.9 (age range 16 to 69 years) and a duration of symptoms ranging from two years to a lifetime.

The controls consisted of 100 female patients with a mean age of 38.0 (range 18 to 69 years) admitted to the Medical Service of Barnes Hospital with the primary diagnosis of pneumonia (including bronchopneumonia, lobar pneumonia and atypical pneumonia). These cases were selected only as to age factor in order that a similar percentage would be taken from each five year age bracket as determined in the psychoneurotic group. These persons had all undergone medical work-ups, but for none had psychiatric consultation been sought. Those cases were eliminated in which there was an additional diagnosis of psychoneurosis.

The histories may err on the side of incompleteness especially regarding the incidence of minor surgery.

In analyzing the types of surgical procedures, only thyroidectomies and intra-abdominal surgical procedures were considered major operations. All others were listed as minor operations. If several procedures were performed at one time they were counted collectively as 1 operation. Surgery involving the chest cavity was not counted, as some of the controls (pneumonia patients) had had operative procedures for chronic pulmonary disease. All minor surgery was considered with the exception of reduction of fractures, cauterization of the cervix, dental extractions, episiotomies and aspiration of nasal sinuses. Radium or roentgen therapy of the pelvic region which resulted in functional abolition of the ovaries was considered a major procedure, but that administered after the patient's menopause was listed as a minor procedure.

Inasmuch as it has been shown that the differences in incidence of surgical procedure relative to the size of the community or geographic location concern mainly minor procedures and vary only slightly in such operations as appendectomies and surgery of the female genital organs,¹⁰ we believed that it was unnecessary to consider the place of residence of the patients at the time of their various operations.



Incidence of major operative procedures in 214 psychoneurotic women (black columns) and 100 controls (white columns). A, major procedures; B, major gynecologic procedures; C, ovarian surgery; D, uterine suspension; E, hysterectomies; F, gallbladder surgery; G, thyroidectomies; H, appendectomies (alone) and I, total appendectomies.

RESULTS

Of the total series of 214 female psychoneurotic patients in this study, 60 per cent (129 cases) had undergone major procedures. Forty-three per cent (91 cases) of the total series had undergone some major gynecologic procedure, and in 29 per cent (61 cases) of the total number ovarian surgery had been performed either alone or in conjunction with other procedures. Ovarian surgery included unilateral and bilateral oophorectomy and the extirpation of ovarian tumors and cysts. Thirteen per cent of the entire group had undergone hysterectomies, 10 per cent suspensions, 7 per cent gallbladder surgery and 2 per cent thyroidectomies, 18 per cent had had an operation in which only an appendectomy was done. Forty per cent had undergone appendectomy either alone or in addition to other procedures (see the accompanying figure).

A total of 185 major operative procedures consisted of 5 thyroidectomies, 175 intra-abdominal operations and 5 artificially induced menapauses. In an analysis of the 175 abdominal operations we find that 62 per cent included gynecologic procedures, 49 per cent included some type of ovarian surgery, and 13 per cent included uterine suspensions.

7 Purtell J and Robins E. Read before the Ninety-Eighth Annual Session of the American Medical Association, Section on Nervous and Mental Diseases, Atlantic City, N. J., June 1949.

8 Clarke R. B. and Ziegler L. H. *Dis Nerv System* 3: 198, 1942.

9 Denker P. G. *Tr. A. Life Insur. M. Dir. America* 24: 179, 1937.

The patients who had undergone major procedures also gave a history of 87 minor operations. Fourteen per cent (22 cases) of the total psychoneurotic series had experienced only minor surgery with a total of 43 minor operations. Twenty-six per cent of the entire group had not undergone surgery.

In studying the control group (100 cases) one finds that 32 per cent have had major surgery, with a total of 40 major operations and 26 minor operations. Fifteen per cent of the series have experienced major gynecologic surgery. Nine per cent of the total reported ovarian surgery, 1 per cent suspension operations and 7 per cent hysterectomies. An operation in which only an appendectomy was performed was tabulated in 17 per cent, 23 per cent had had an appendectomy either alone or in conjunction with other procedures. Thirty-eight per cent of the controls had not had surgical treatment and 29 per cent had undergone only minor surgery, with a total of 33 minor operations.

In summary one finds that the psychoneurotic group averages 86 major and 44 minor procedures per 100 persons while the controls average 40 major and 59 minor operations per 100 persons.

A smaller group of Negro women was studied separately because, as Levy and Meyer¹¹ have shown in a comparison of gynecologic disease in white and Negro races, the abdominal gynecologic surgical treatment of a Negro woman concerns mainly fibroids and pelvic inflammatory disease. These workers emphasized that as a result of extensive disease it was almost impossible to do conservative gynecologic surgery in the abdomen of the average Negro woman. Although the number of Negro female psychoneurotic subjects was small (23 with average age of 36 years), the statistical data closely resemble those of white psychoneurotic persons with the exception of a higher incidence of oophorectomies and hysterectomies. Fifty-seven per cent of the Negro women had had major abdominal operations, 43 per cent had undergone gynecologic surgery, 35 per cent oophorectomies, 17 per cent hysterectomies, and 17 per cent appendectomies (as a single procedure).

COMMENT

It would seem worth while to attempt an explanation of why psychoneurotic women undergo more gynecologic operations than nonpsychoneurotic women. Many writers¹² have pointed out the interrelationship between gynecologic and psychiatric disturbances and the common occurrence of gynecologic complaints in psychoneurotic women. It has also been stated that preexisting gynecologic symptoms become exaggerated with the onset of a psychiatric illness. For example, in Johnson's⁶ series of 100 women with pelvic complaints of psychogenic origin, physical examination showed that 66 per cent had low grade chronic vaginitis and low grade chronic cervicitis. On analysis it was found that there was an average of more than three years' duration of vaginal discharge before the onset of present symptoms. The discharge was disregarded until there arose an emotional crisis and then it assumed importance.

Surgery for dysmenorrhea and other vague pelvic complaints is strongly contraindicated in the neurotic patient unless a definite condition sufficient to explain the symptom is found. Such surgery is usually unsatisfactory and only tends to direct attention toward all pelvic functions and encourage hypochondriasis and resultant invalidism. There is a certain degree of discomfort associated with menstrual periods at one time or another in all women. In the neurotic person with lowered pain threshold the unpleasantness is over-emphasized. It is important to evaluate the personality make-up and possible emotional conflicts of the gynecologic patient.

We may interpret the equal incidence of thyroidectomies and the single procedure of appendectomies in the psychoneurotic persons and the controls as resulting from better preoperative diagnosis in these conditions in recent years. No longer is the diagnosis of chronic appendicitis being generally upheld. Improved laboratory methods have helped confirm the diagnosis of thyroid disease.

It would seem desirable to discuss the different factors that may aid in preventing unnecessary surgery. First, it is important especially in the neurotic patient not to overemphasize unimportant abnormalities. Many of these minor abnormalities were unknown to the patient and caused no symptoms until the patient was informed of the condition by the physician. Bambridge¹³ stressed that one should practice the art of permitting the neurotic patient to glean only those facts which make for healing. Many a psychoneurosis has been aggravated by an unwisely spoken opinion.

Second, it is important that emotional problems be recognized and their more obvious relation to the patients' complaints explained. The individual needs to understand the mechanism of the development of the symptoms as a first step toward their alleviation. It is essential that this understanding be fostered in all fields of clinical medicine and not just in psychiatry, so that the patient can receive help early in the illness. Menninger¹⁴ pointed out how poorly the neurotic patient is understood by many physicians and stated that it might be construed as evidence of a failure in our medical education.

Third, except when symptoms are acute, surgery should be avoided in the psychoneurotic person until the emotional factors have been investigated. If organic disease does require surgical treatment the patient should receive both preoperative and postoperative psychotherapy. The candidate for surgery should be told just what symptoms the operation should relieve, the procedure should not be regarded by the patient as a panacea for all her multitude of complaints. If at operation organic disease is not found, it is the surgeon's responsibility to reveal the facts to the patient and see that adequate postoperative psychotherapy is instituted.

Some cases of psychoneurosis seem to originate after an operation. However, many times after a more detailed history one discovers that neurotic symptoms existed preoperatively. One should not overlook the duty of the surgeon to allay and minimize all possible fears associated with surgery. For example, a woman undergoing a gynecologic operation should be assured that previously established patterns of sexual behavior will not be lost.

¹¹ Levy, W. E., and Meyer, H. *New Orleans M. & S. J.* **89**: 418, 1937.

¹² Bryson, E. *Practitioner* **155**: 378, 1945. Donald, J. M. *South Surgeon* **6**: 288, 1937. Furst, W. J. *Chn. Psychopath.* **7**: 507, 1946. Horney, K. *Am. J. Obst. & Gynec.* **25**: 694, 1933. Houston, W. R. *Texas State J. Med.* **32**: 534, 1936. Kosmak, G. W. *New York State J. Med.* **45**: 2298, 1945. Leaver, H. M. J. *Australia* **2**: 769, 1934. Malfroid, B. W. J. *Michigan M. Soc.* **32**: 25, 1933. Pratt, J. P. J. M. A. *Georgia* **35**: 243, 1946. Seeley, M. S. *Texas State J. Med.* **36**: 556, 1940. Turlington, L. F. *South M. J.* **30**: 723, 1937. Johnson⁶ McGee¹.

¹³ Bambridge, W. S. *Psychiatric Quart.* **4**: 414, 1930.

¹⁴ Menninger, W. C. *Ann. Int. Med.* **27**: 487, 1947.

Although some of the responsibility for unnecessary operations lies with members of the medical profession, we should recognize that many psychoneurotic persons become exceedingly demanding and aggressive in desiring surgical treatment. They frequently change doctors until they reach a willing surgeon, who understandably tends to evaluate the symptoms in the light of his specialty. Surgery to these patients may be an escape from an intolerable environment and may serve as a means of securing desired attention and affection. Other unconscious motives may be a wish for death or an expression of masochistic trends. For these reasons it is essential for the surgeon to defer operative intervention on the too insistent patient unless surgical indications are clearcut.

SUMMARY

The incidence of major surgical procedures in 214 case histories of chronic psychoneurotic women was compared with that in a group of 100 controls. Sixty per cent of the psychoneurotic group had undergone major procedures, and 43 per cent had undergone some major gynecologic operation. In the control group 32 per cent had had major surgery and 15 per cent of the series had experienced major gynecologic operation. The various factors which help explain the higher incidence of surgery in the psychoneurotic group were discussed, and possible means of decreasing the number of unnecessary surgical procedures in this group were suggested.

COLLES' FRACTURE

A Study of End Results

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Some years ago it was decided to study the end results of Colles' fracture. A chart was prepared and an attempt made to follow patients at least two years. This objective was attained in only 46 of the 361 cases of Colles' fracture studied. However, 35 other cases were followed long enough for the end result to be determined, making a total of 81. Over this same period my colleagues and I ascertained the late results in an additional 54 cases (not included in our 361) with enough deformity of the wrist to be recognized as cases of old Colles' fracture.

All 361 patients in this series were treated in a similar manner. The sole important variable was the amount of wrist flexion in which immobilization was carried out after manual reduction. Only plaster splint fixation was used. The dorsal splint was carried distal to the knuckles and the volar one to the proximal palmar crease. This permitted full finger motion, for which the patient was urged to strive. Elevation of the part was prescribed for as long as necessary to get rid of edema. Shoulder motion was advised for those who carried the arm in a sling. When the splints were removed, active motion and exercises of the wrist were begun. These have a twofold purpose, namely, to increase motion and to redevelop the forearm muscles. Physical therapy was not used unless it was requested, and then its relative inferiority to active exercise was impressed on the patient. It was used for the occasional demoralized person who needed the feeling that something was being done for him and that others were

interested. Through it more frequent contact with the patient was maintained. The daily application of moist heat proved helpful, and patients reported increased ranges of motion during this treatment.

RESULTS OF STUDY

The results here are those in an elderly group of patients. The average age of the patients for whom the end results were ascertained was 52. Only 18 were

TABLE 1—End Results in 81 Cases

Anatomic Result	Function		
	Excellent	Good	Poor
Excellent	4	5	1
Good	9	9	
Poor	2	3	2
Bad	3		
	61	17	3

below 40 and only 3 under 20 years of age. End results were evaluated after one year in 25 cases and after two or more years in 46 cases. A few (10) who obtained full function in less than a year were included in the end results.

Table 1 shows how the end results in 81 cases at Roosevelt Hospital were classified. In classifying anatomic results, we considered deformities of the wrist to be (1) shortening, (2) dorsal tilt, (3) radial deviation due to greater shortening or shift of the lateral portion of the radial articular surface than of the medial portion and (4) thickening of the wrist. For classification as an excellent anatomic result, not more than 1 plus deformity of any variety could be present. One plus deformity was that which was just recognizable clinically. An anatomic result to be placed in the "good" classification might have 2 plus deformity in one and rarely in two categories. These determinations were of necessity somewhat arbitrary.

Excellent function meant absence of pain and no defects in strength. Limitation in one or two movements of the wrist as great as 15 degrees was permitted in the "excellent" classification. A result classified as good had to leave the patient free of pain.

Table 2 shows a similar classification of results in 52 patients with 54 Colles' fractures who were seen at least a year and usually two to fifteen years after their

TABLE 2—End Results of 54 Colles' Fractures

Anatomic Result	Function		
	Excellent	Good	Poor
Excellent	2		
Good	11	4	2
Poor	12	5	2
Bad	—		1
	25	12	5

injury. These patients were discovered during ward rounds or were seen because of other injuries and had old Colles' fractures. They had been treated at various hospitals. The infrequency of excellent anatomic end results, noted in this group, is at least partly due to the fact that, practically, only those patients showing obvious deformity were recognized as having had a Colles' fracture.

Tables 1 and 2 reveal that the functional results of Colles' fracture were good or excellent in the great

majority of the cases. This was true even though the anatomic result was poor or bad. It should be emphasized that these are end results and not intermediate results.

Table 3 compares the function noted in the end result groups with another group of 56 cases which were followed only three to six months. It is apparent that in the latter maximum function had not been attained.

Experience with these cases suggests that in general most patients with Colles' fracture get satisfactory, useful wrists and hands in time. The few who do not are elderly patients who already have osteoarthritis. Pain eventually disappears but finger motion may be permanently restricted, though even these patients regain most of the mobility present before injury. Good treatment is much more important in obtaining early function than in influencing the late functional result.

COMMENT

Anatomic Considerations—There is some variation in the pattern of Colles' fracture as well as in the degree of severity. Badly comminuted and oblique fractures are difficult to reduce and still more difficult to hold. It is common for some deformity to recur while the wrist remains in plaster splints. The reason for this is the inadequacy of the plaster method in limiting motion of the fragments and in opposing muscular pulls. Plaster splints or casing, separated from the fragments they are to immobilize by varying amounts

TABLE 3—Comparison of Functional Results

	Excellent	Good	Poor to Fair	Bad
56 patients followed 3 to 6 months	19	21	14	2
81 Roosevelt Hospital patients	61	17	3	
4 patients treated elsewhere	37	12	5	

of movable soft tissue cannot prevent shifting or shortening of oblique or comminuted fractures. Immobilization of Colles' fractures with plaster splints leaves much to be desired, but more complex methods have not improved anatomic or functional results sufficiently to warrant their use in other than occasional cases.

Since this study, we much more frequently use splints immobilizing the elbow. Permitting elbow motion is a frequent cause of motion at the fracture site, with consequent loss of position. In our experience, immobilization in marked palmar flexion results in a painful, prolonged convalescence. There are common misconceptions that flexing the wrist (1) assists in reducing the fracture and (2) prevents dorsal tilting. If one examines a dissected specimen, it will be seen that there is no tension on the dorsal radiocarpal ligament until maximum flexion is reached. This is confirmed by flexion of one's own wrist. Tension is produced only at the extremes of motion and not gradually as they are approached. Therefore, unless maximum flexion (a position which interferes with circulation and is painful) is used, some dorsal tilting can recur. Dorsal tilting is one of the most pronounced anatomic deformities of Colles' fracture but is the least disabling. Radial deviation of the wrist and shortening, with the resultant disturbance in the radioulnar joint, are greater functional handicaps.

Function—Pain. When the fracture is properly reduced and splinted, pain quickly disappears. Pain should not recur when the splints are finally removed. If it does, it is likely that union is not solid. Tender

callus confirms this. Nothing is gained by trying to exercise the wrist.

Late persistent pain, i. e., lasting three months to a year after injury, is frequently located on the ulnar side of the wrist and radiates to the little finger. This is most likely due to motion at the site of the fibrous union between the ulna styloid process and the distal end of the ulna or to disturbance of the triangular cartilage. Late pain or paresthesia is commonly felt in the fingers, usually the middle one. It may radiate from the wrist.

Pain or aching associated with changes in the weather not infrequently persists for as long as a year after severe Colles' fracture. Wringing clothes, turning tight door knobs, heavy lifting and pronation and supination movements under stress are frequently painful for a year after injury. Happily, few patients have pain after this time even when they retain considerable deformity, but, as might be expected, the younger the patient the more complete is the recovery and the earlier it occurs. No person in our groups whose Colles' fracture was more than two years old had any serious functional complaints no matter how bad the deformity.

Motion. If union is sufficiently solid and finger function is normal at the time the splints are removed, the recovery of wrist motion is swift and not a great problem. Under these conditions from 30 to 60 per cent of normal motion is present when the splints are discarded. Further recovery in the following month results in 60 to 100 per cent normal motion.

The problem is different when finger motion is poor and the splints are removed too early, i. e., before the callus is sufficiently strong. Then pain occurs on attempted motion of the wrist, and spasm, swelling and increasing stiffness of the fingers develop. Even though one waits until the callus is sufficiently strong to remove the splints, if finger motion has been poor and the patient unable to make a tight fist recovery of wrist motion is slow and requires a matter of months. The decreased circulation consequent to lack of function results in persistent edema and a shortening and thickening of ligaments.

Another factor in the recovery of joint function is muscle strength. When muscles operating over joints atrophy, the greatest and most important force in recovering joint function is greatly weakened. Atrophied muscles of the forearm cannot stretch tightened ligaments. Atrophy of the flexors of the forearm is always apparent if the patient has not used the hand during the period of splinting. Exercises to increase muscle strength are as important in the recovery of joint function as are exercises which move the joint. For these reasons, the speed of recovery of joint mobility tends to accelerate, increasing as joint movement and muscular strength increase.

Unfortunately, many principles of the treatment of Colles' fractures are insufficiently known or their applications are not enforced. Consequently one constantly sees patients who originally sought care for a disabled wrist and later seek care for a disabled hand. We feel that the following are common violations of the principles: (1) rocking the fracture back and forth to break up the impaction, an action which further comminutes the fracture and injures the soft tissues, (2) application of splints without anticipation of further reactive swelling and edema, (3) neglect of shoulder and finger exercises, (4) inadequate immobilization due to (a) poor splints or (b) too brief a period of

immobilization, i. e., under five to six weeks in patients with deformity, (5) immobilization in marked flexion which position is painful and interferes with circulation and (6) failure to make the patient understand the importance of early function of the fingers and the dominant role of active exercises in the recovery of function.

The late complications in cases of Colles' fracture concern joints, tendons or nerves. Increased arthritic changes in the hand are unfortunate sequelae in a few patients already suffering from this condition. Subluxation of the lower radioulnar joint with pain and clicking, occurred in 1 case. Stiffness of the shoulder is another complication. It occurs when a patient carries his arm in a sling continuously and fails to exercise the shoulder during immobilization of the wrist.

Complications involving tendons included rupture of the long extensor of the thumb, a rare complication, and stenosing tenosynovitis in 2 cases involving the thumb in one (Quervain's disease) and the middle finger in the other.

Nerve complications include paresthesias due to involvement of the median or ulnar nerves. Symptoms from these usually persist for months or may occur as sequelae.

A disturbing condition which is occasionally seen and which must be considered a complication when it persists is the painful swelling of the hand and fingers that results in prolonged disability and demoralization of the patient. The hand is usually reddened, cold and clammy, motion is painful and aching at night disturbs sleep. This complication usually occurs in those who have had pain from the start and in whom disuse atrophy has developed. Osteoporosis becomes severe, and the condition is akin to Sudeck's atrophy. Nerve blocks have not proved helpful.

SUMMARY

Three hundred and sixty-one patients with Colles' fracture have been treated and studied over a period varying from six weeks to several years. End results have been evaluated in 81 cases. The results in an additional 54 patients treated elsewhere have been evaluated one and a half years or longer after injury. All the patients studied were treated by manipulative reduction and plaster splints or plaster cast fixation. This method failed to prevent some anatomic deformity from recurring in many cases. During the immobilization emphasis was placed on preventing or reducing edema and on active finger exercise.

The functional end results were good or excellent in 127 of 135 cases of Colles' fracture. In only 8 were there poor functional results. Good or excellent function included absence of pain, good strength and an adequate range of motion. While there appeared to be a parallel relation between anatomic and functional end results, good function usually resulted even when the anatomic result was poor. This was especially true when the fracture occurred during the first four decades of life. A good early functional result was much more dependent on good treatment than was the final result.

The complications associated with Colles' fracture have been described. They involve joint function, muscles or tendons. A painful disabled hand was the most common complication of Colles' fracture in our group of cases. When this occurred, the recovery of good function required months.

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CARBON TETRACHLORIDE NEPHROSIS

A Frequently Undiagnosed Cause of Death

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and

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In our experience acute carbon tetrachloride poisoning is common, and the true diagnosis is missed frequently. The condition in many such cases is diagnosed as uremia due to nephrosis or nephrosclerosis. Several factors probably account for this error. 1. Most cases are now sporadic and nonindustrial. Large industries using the chemical have become aware of its hazards and have applied effective safeguards. Yet undoubtedly huge quantities are purchased by individual persons for cleaning purposes. The potential hazards may be vaguely referred to in fine print on the bottle, however the patient seldom thinks to associate anuria with exposure to the chemical because of the time interval between exposure and renal symptoms. 2. Intake of alcohol at the time of exposure appears to increase the incidence of acute poisoning and also serves to obscure the cause in the patient's mind. 3. Too many physicians think of carbon tetrachloride poisoning only in terms of acute collapse and liver damage. Smetana pointed out in 1939 that the liver damage may not be fatal and is often transient or overlooked, only to be followed later by renal shutdown. The maximum liver damage occurs within forty-eight hours. Clinical jaundice may be absent or may have cleared before renal symptoms develop. Cases of uremia are ever present on medical wards, and, at the present time, hepatocellular jaundice is also common. In our experience, unless the patient's occupation suggests carbon tetrachloride as a causative agent, this particular cause will be elicited only in a history taken by one specifically instructed to ask about it in every case of jaundice or renal impairment. At the United States Marine Hospital, Staten Island, N. Y., there have been 12 cases of carbon tetrachloride nephrosis in the past 5,000 admissions. Five of these cases proved fatal. The incidence was exactly twice that of subacute bacterial endocarditis for the same two year period. Certainly subacute bacterial endocarditis is not considered a medical rarity.

Only 1 of our cases may be considered an industrial poisoning. The rest have all occurred outside the usual occupation of the patient. In 2 cases only did the patient volunteer the correct cause of his illness. The following cases illustrate some of the types of poisoning, the pitfalls of diagnosis and the difficulties in treatment.

Two American seamen were transferred to the Marine Hospital from a nearby large municipal hospital. They had been admitted to that hospital three days before with nausea, vomiting and diarrhea of twenty-four hours' duration. The clinical abstract accompanying these patients from that hospital contained only the information that the patients had become ill after a spaghetti dinner. The diagnosis was acute gastroenteritis. Here, by direct questioning, it was learned that both patients had been cleaning their clothes with carbon tetrachloride twelve hours before the onset of their symptoms. They both drank about

From the United States Marine Hospital, Staten Island.
Published with permission of the Surgeon General, United States Public Health Service, Washington, D. C.
Surgeon, United States Public Health Service (Dr. Farrier) and Medical Director of the United States Public Health Service and Chief of the Medical Service, United States Marine Hospital, Staten Island (Dr. Smith).

5 ounces (148 cc) of whiskey during the cleaning process. The family of one of the patients was in the room the entire time but had nothing to drink and did not become ill. By further questioning it was learned that both men had been anuric for three days. This then was the classic picture—nausea, vomiting, diarrhea and anuria. Yet since the correct diagnosis was not considered, the condition was labeled "acute gastroenteritis" and the patients were given large amounts of intravenous sodium chloride and dextrose. This, incidentally, is probably the worst thing that can be done in a case of carbon tetrachloride nephrosis.

The next history shows, however, that in our hospital, where everyone on the staff has been repeatedly reminded of the condition, the same oversight can occur. A Coast Guard chief boatswain's mate presented himself at the outpatient department. His outpatient card listed the chief complaints as nausea, vomiting, diarrhea, pain in the right upper abdominal quadrant and anuria. The condition was diagnosed as "acute gastroenteritis," and the patient was taken off duty and told to return if he was no better in two days. No further comment or mention was made of the anuria on the outpatient record. The patient returned two days later and was admitted to the medical service, where the history of acute drunkenness forty-eight hours before his first visit was obtained. The next day his wife had cleaned his uniform with carbon tetrachloride in the same room with the patient. The wife had had nothing to drink and did not become ill. The patient subsequently died of azotemia. Here again an incomplete history and failure to follow up even the incomplete information obtained delayed the correct diagnosis.

The possibility that our rather specialized group of patients might have been exposed because of the nature of their work led to the investigation of all the charts with this possibility in mind. Ten of the patients were exposed to carbon tetrachloride on shore and 2 were exposed on ships tied up in New York harbor. Seven of the men were exposed while cleaning clothes with carbon tetrachloride. One man was painting a room in his house, using carbon tetrachloride to thin the paint. Another was given carbon tetrachloride by a ship's purser who thought he was administering paregoric. One was drinking gin when a friend filled his "jigger glass" with carbon tetrachloride as a joke. Another was sleeping on the ship near a place where a carbon tetrachloride fire extinguisher had been used and inhaled the fumes. One was cleaning the upholstery of his car.

It has been stated that carbon tetrachloride causes damage to the liver but that when kidney damage is present it is due to the carbon tetrachloride being broken down by heat to phosgene. That this concept is incorrect is shown in our records. The only man who was poisoned with carbon tetrachloride that had been used to extinguish a fire was also the only one in whom kidney damage did not develop. On the other hand, in the cases in which the drug was ingested the patients died of anuria with uremia, in the other fatal case the patient had inhaled the drug.

The treatment is, of necessity, unsatisfactory, since as yet there is no successful substitute for all the functions of the kidneys and liver. Of our 12 patients, 5 died and the remaining 7 were discharged with no demonstrable kidney damage. The treatment is symptomatic. Our treatment has not been uniform. All treatment has been aimed at keeping the patient alive until kidney damage could be repaired. The kidneys show

degeneration and desquamation of the tubular epithelium but in all cases there is also a great deal of regeneration of cells, as shown by large numbers of mitotic figures. The pathologic picture is one of immediate damage to the liver and then, shortly thereafter, damage to the kidney. However, the cause of the damage is dissipated almost at once. Then it is simply a matter of keeping the patient alive until enough tubular parenchyma can be regenerated to recover normal function.

We have used two general methods of treatment. One was logical from the pathologic picture, the other was not. Three of our earlier patients received large amounts of intravenously administered fluids in what was generally accepted as good treatment for uremia. The remainder of the patients were treated by some form of irrigation. The most common form was insertion of a Miller-Abbott tube in the small intestine. Then isotonic sodium chloride solution or Ringer's solution was allowed to flow, while at the same time a Wangensteen suction was maintained to remove this fluid and, it was hoped, the excess nitrogenous wastes normally excreted by the kidney. This method was successful, at least, in preventing nonprotein nitrogen of the blood and urea nitrogen level from rising too rapidly. The other form of irrigation used was transperitoneal lavage. In this last method two sump drains were placed in the abdomen, and approximately 30 liters of fluid were perfused across the peritoneum every twenty-four hours.

Several considerations in the treatment of anuria due to carbon tetrachloride poisoning may apply to the treatment of other types of acute anuria. Theoretically, at least, in most cases the process is reversible. There is a lower nephron nephrosis, with degeneration and desquamation of the lining epithelium. Given enough time this epithelium may regenerate and resume its normal function. Thus, the aim of all therapy is to keep the patient alive until his kidneys can resume function. In general, this has been found to be about twelve days. If the patient survives this long he will have a 90 per cent chance of recovery. However, this is not an easy thing to do. The following method has been found to be the most effective.

As soon as the diagnosis of acute anuria has been established, the patient should have his fluid intake limited to 800 cc of salt-free fluid a day. Salt is restricted for all patients that do not show hypochloremia. If this is present then the patient is given only enough salt to bring the chloride level of the blood to normal. This may seem to be an extremely severe fluid restriction. However, the 250 cc of water formed by the body from the breakdown of body carbohydrates helps to replace the fluid lost and does not give the patient enough fluid to form edema. This last is important, since nearly all these patients die not of azotemia per se but either of pulmonary edema or of cardiac insufficiency. If, with this regimen, excretion does not start and if the blood levels (nitrogen, creatinine) rise to alarming heights then some form of extrarenal removal must be instituted. Methods previously mentioned use the intestine or the peritoneum as semipermeable membranes. The other method is the use of the so-called artificial kidney.

We have mentioned that we lowered the nonprotein nitrogen level in several patients by using a Miller-Abbott tube with continuous suction and perfusion. Unfortunately, the nonprotein nitrogen level was the only thing that was lowered. Some recent work at Cornell showed that the intestine is not a semipermeable membrane but is rather a selective, secretory membrane. With this type of irrigation no creatinine is removed

from the blood, and a great deal of water is absorbed into the general circulation. It is now generally believed that this form of treatment is as dangerous as the giving of large quantities of fluid by vein in an attempt to "force" the kidneys.

A more satisfactory form of dialysis utilizes the peritoneum. In the peritoneum there are approximately 22,000 sq cm of filtering surface, whereas in the glomeruli there are approximately 15,000 sq cm. By using this membrane it is then theoretically possible to remove most abnormally high metabolic products from the blood and thus sustain the patient until enough tubular epithelium has been regenerated to take over its function. This has been done in 82 reported cases, with 21 survivals. The irrigating fluid which has been found to be the best suited does not alter the electrolyte balance of the blood in its essential constituents. It must be remembered that fluids and electrolytes may flow both ways across the peritoneum. The constituents of this fluid, developed at the Mayo Clinic, are shown in the accompanying table.

It should be noted that with either transperitoneal irrigation or the artificial kidney the use of more or less than a 0.6 per cent solution of sodium chloride will result in serious complications. If the usual 0.9 per cent sodium chloride solution is used, the sodium chloride

Composition of the Irrigating Fluid Developed at Mayo Clinic

Constituents	Gm. per Liter
Sodium chloride	6.0
Potassium chloride	0.3
Calcium chloride	0.1
Magnesium chloride	0.1
Sodium acid phosphate	0.05
Sodium bicarbonate	2.0
Sodium citrate	1.57
Dextrose	6.0

will cross over into the blood and edema will develop. If less than 0.6 per cent sodium chloride solution is used, the sodium chloride will be drawn out of the blood and dehydration with hypochloremia will result. Penicillin, 10 units per cubic centimeter, and 1 mg. heparin sodium per liter, are also added. If peritonitis develops and is found to be due to a streptomycin-sensitive organism, then this too should be added. (A detailed account of the technique of transperitoneal lavage appears in the Mayo Clinic number of the *Medical Clinics of North America* for 1948¹.)

Another method for extrarenal clearance has not yet been tried at the Staten Island Marine Hospital. This is the artificial kidney, which utilizes a long cellophane tube as the semipermeable membrane. The patient is heparinized and the blood is passed through the cellophane tube, which is immersed in the same type of solution as that used in transperitoneal irrigation. With this method about 45 Gm. of nonprotein nitrogen can be removed in twenty-four hours. Which of these two methods will finally be found to be the more advantageous only time will tell. Certainly both are serious undertakings, and may be life-saving when really indicated.

It was never the purpose of this paper to attempt a critical comparison of various forms of treatment, but rather to stress the fact that here were 12 patients who had had a disease acquired from the use of a so-called

harmless household cleaning fluid. The 12 cases seen here in the past two years are not believed to constitute an unusual or chance incidence. The Marine Hospital at San Francisco has had 15 cases in the past two years. Several of the larger hospitals in New York have noted recent increases in this condition. Yet there is reason to believe many cases are still missed. In checking the records of one hospital comparable in size to the Marine Hospital at Staten Island, we found that they had not diagnosed carbon tetrachloride nephrosis in any case in the past 5,000 admissions.

SUMMARY

1. We feel that many cases of carbon tetrachloride poisoning are being overlooked owing not to difficulty of diagnosis but rather to a low index of suspicion in the mind of the attending physician.

2. The majority of these patients may recover completely if some functions of the kidney can be taken over by other means and the patient's electrolyte balance maintained.

3. The danger of overloading these patients with fluids cannot be overemphasized.

4. Carbon tetrachloride poisoning is no longer much of an industrial problem but rather a hazard of the home. It can strike anyone who attempts to clean with carbon tetrachloride.

5. Ingestion of alcohol proximal to the period of exposure to the chemical greatly increases the hazard of the development of acute poisoning, lessens the outlook for recovery and reduces the chances of obtaining an accurate history.

6. Increased vigilance on the part of physicians will go a long way toward evaluating the scope of the problem and instituting proper educational and legal safeguards.

ADDENDUM

Since preparation of this article, 14 more patients with carbon tetrachloride poisoning have been treated at this hospital, with approximately 80 per cent recovery.

Twenty-Five Names Attached to a Clinical Picture

—The Guillain-Barre syndrome is a clinical entity which is not often diagnosed, although its occurrence is not uncommon. The chief reason for this is the failure of all attempts to isolate an etiologic agent and also the multiplicity of synonyms by which this form of neuritis is known. Infectious polyneuritis, Guillain-Barre syndrome, acute polyneuritis with facial diplegia, Landry's ascending paralysis are but a few. To date there have been 25 names attached to this clinical picture.

Osler, in 1892 described the first case under the name of "acute febrile polyneuritis" and noted its similarity to Landry's ascending paralysis. Several other case reports appeared in the succeeding 15 years, but it was not until 1916 that important additions to the clinical picture were made.

The type of infection initiating this course of events varies greatly, the syndrome has been known to follow in the course of acute upper respiratory infections, pneumonia, encephalitis, measles, mumps, scarlet fever, influenza, varicella, botulism, tuberculosis and syphilis. Recently infectious hepatitis and infectious mononucleosis were also found to be precipitating illnesses. In fact Hiller and Fox have suggested that a heterophile antibody determination be done in every case of the Guillain-Barre syndrome.—Reitman and Rothschild, the Non-Infectious Nature of the Guillain-Barre syndrome with a Possible Explanation for the Albuminocytologic Dissociation, *Annals of Internal Medicine*, May 1950.

¹ Odell, H. M., Ferris, D. C. and Power, M. H. Clinical Considerations of the Problem of Extrarenal Excretion. Peritoneal Lavage. *M. Clin. North America* 32: 989 (July) 1948.

Clinical Notes, Suggestions and New Instruments

INTERMITTENT CLAUDICATION TREATED BY REDUCING DEMAND OF CALF MUSCLES FOR BLOOD

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Philadelphia

Intermittent claudication is the presenting symptom of the great majority of patients with arterial occlusion in the legs, whether it be due to arteriosclerosis, thromboangitis obliterans or past embolism. Despite all the vasodilator drugs, blocking of sympathetic ganglions and sympathectomy, the mechanical methods, intra-arterial injections and even multiple transfusions, at least half the patients with intermittent claudication cannot walk better after treatment than before treatment.

In a study of a group of ischemic patients who continued to complain of inability to walk more than a block or two without stopping, it became evident that in these patients with major arterial occlusion the collateral vessels, even when maximally dilated, cannot supply sufficient blood to the calf muscles to permit continuous walking without pain. Since treatment directed toward increasing the blood supply so often fails to improve claudication, the idea suggested itself that perhaps one could reduce the demand of the calf muscles for blood so that demand would more closely approximate the limited supply and the symptom of claudication would be delayed or prevented.

METHOD

To determine whether this could be done, it was necessary to obtain more information concerning claudication, each patient was taken outdoors (few patients manifest claudication indoors) and told to walk as he did ordinarily. I walked alongside each patient. He was told to tell me as soon as discomfort, fatigue or pain appeared in the foot or leg. As soon as we started walking a stopwatch was started and a counter used so that the rate of walking was determined for each patient, also the time of onset of fatigue, the distance which could be walked without stopping, how long the patient had to rest before he could walk again and how soon claudication returned. The length of the step was also measured. Thirty patients with varying degrees of claudication were studied in this way. For purposes of comparison the walking of 10 normal persons was also studied.

RESULTS

The average rate of walking for patients and normal persons was between 110 and 120 steps per minute. A few older patients had a rate as low as 90 steps. One patient, aged 30, with thromboangitis obliterans demonstrated his walking rate as it had been before his arterial occlusion, and he walked 164 steps per minute. A curious observation at the start of the tests was that most patients with claudication were walking at 110 to 120 steps per minute, which is the average normal rate. Yet most patients had stated before the test that they were walking more slowly than formerly. What they were actually doing was walking at their regular preclaudication rate until pain appeared in a leg, then they would slow up or stop at the end of a half or whole block, rest and start walking again. Since it takes the patient longer to get to his destination, he thinks that he is walking more slowly. Only a few patients, usually those with extreme ischemia, slow up before pain starts.

I then had these patients walk with me at an average rate of 90 to 105 steps per minute, instead of their usual 110 to 120 steps, and in practically every patient claudication was greatly delayed or did not come on at all. While walking along at the slower rate during the test some patients would volunteer, "at this rate I can walk indefinitely." The week after the walking test, a patient who previously could not walk to the corner to get a newspaper without pain stated that he had been able to walk six blocks without stopping. He had simply been shown that by sauntering or strolling along at a rate of 90 to 100

steps per minute, instead of using his regular gait of 115 to 120 steps, he could get to his destination without pain and without stopping.

Another paradoxical fact that became apparent from this study of the walking habits of persons with claudication is that by reducing his walking rate by 20 to 30 steps per minute he can get to his destination more rapidly, and in some cases he is enabled to reach a destination to which he was unable to walk at his former regular rate. For example, a patient with moderate claudication walking at 120 steps per minute walks one block in almost two minutes. He then must stop for approximately one minute. To walk four blocks requires his walking for eight minutes and resting for three, a total of eleven minutes. The same patient walking 960 steps (four blocks) at 95 steps per minute requires only 101 minutes to complete the distance without pain and without stopping half a dozen times. One of the patients tested had to take a trolley to go two blocks.

In addition to learning the importance of the walking rate of patients with claudication, several other helpful facts emerged from these studies. Patients who shortened their steps were able to walk better. Also when pain appeared so that the patient had to stop, some had learned that pain or fatigue disappeared more rapidly if the weight was shifted to the better leg. This drew attention to the fact that the greater the contraction or tension of the calf muscles, even in standing the greater the need for blood. When tension was taken off the ischemic calf the need for blood was reduced. Even the carrying of a package reduces the distance that these patients can walk.

Two patients had learned an ingenious way to increase their walking ability by four or five times. By holding the knee of the affected leg in a stiff or semistiff position, they walked with a limp with most of the weight on the good or better leg. They were utilizing the limp as a technique in walking throughout their walking and not merely when pain began. They had exchanged a severe intermittent claudication for a mild constant limp. The limp presumably reduced the tension on the calf muscles of the ischemic leg. Psychologically it is good for patients to know a method whereby they can walk farther or faster in an emergency. This limping technique allowed 1 patient to retain his job, which required more walking than his claudication would otherwise have permitted. Boyd, Ratcliffe, Jepson and James¹ accomplished the same purpose surgically by cutting the achilles tendon just above the heel with a fine sharp tenotome.

COMMENT

It is of interest that the first man to describe intermittent limping, Boullay, a veterinarian described it in 1831 in the horse in this manner: "The horse would present no symptoms at rest or when going slowly but, when going at a hastened gait or trot, at the end of five to fifteen minutes would begin to drag one or the other hind leg and, if driven still further the horse would lie down, unable to continue. After a pause or rest of five to thirty minutes, the horse became wholly restored and capable of going on. Autopsy of such a horse revealed obliteration of the distal portion of the aorta or closure of an iliac or femoral artery."

The blood in the leg muscles is required to supply nutrition to transport the body from one place to another. It takes more blood for the leg muscles to carry the body a certain distance at a rapid rate than at a slower rate. There appears to be an optimum rate at which each normal person can walk without fatigue and another, slower, optimum rate at which many patients with fixed and reduced blood supply to leg muscle can walk with little or no fatigue.

Vernon² studied the distance a normal man could walk with a fixed amount of oxygen, 60,000 cc, and the effect of increased speed on his performance. At a rate of three miles an hour he covered 33 miles before the oxygen gave out. When the pace was increased to five miles an hour he covered only 24 miles with the same amount of oxygen. Putting this another

¹ Boyd A. M., Ratcliffe A. H., Jepson R. P. and James, G. W. H. Intermittent Claudication. *J. Bone & Joint Surg.* 31B:325 (Aug.) 1949.

² Boullay. *Arch. gen. de med.* 27:425 1831 quoted by Buerer. *Circulatory Disturbances of the Extremities*. Philadelphia, W. B. Saunders Company 1924.

³ Vernon cited by Gray A. W. *The Futurity of Hurry*. H. 26:400 (June) 1948.

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way, at 3 miles an hour the man required 18,000 cc. of oxygen per mile, at 5 miles per hour he required 25,000 cc per mile.

Patients also have a limited supply of oxygen and of whatever else blood supplies in their leg muscles when they walk. The average normal walking rate is too fast for the patient with reduced blood supply to the legs. The optimum rate of walking for a patient with reduced blood supply would be a rate which does not require more oxygen than the blood vessels can supply.

All patients with claudication have much more trouble in walking uphill, or upstairs, than on the level. This is not surprising, since it takes as much energy to lift the body 1 foot in going upstairs as it takes to walk 16 feet on the level. It has been found that the faster the rate of walking the higher the body is lifted at each step. This explains, in part, the great expenditure of energy in running.⁴

It is not easy to slow a patient down before claudication begins. After all, there is nothing wrong with the patient's ability to walk until claudication begins, after he has gone a block or two. The walking rate is fairly constant for each person. It is not enough to tell a patient that he must walk more slowly. In many cases the patient will have to be shown that slower walking means getting farther with less pain. Perhaps one may tell the patient to learn to walk at the rate of 90 to 95 steps per minute or tell him to saunter or stroll along.

SUMMARY

1 By studying patients with intermittent claudication it has been found that most of them walk at the rate of 110 to 120 steps per minute (i.e. normal rate), despite the fact that they state and believe that they walk more slowly than was previously their habit.

2 When such patients reduced their rate of walking to 90 steps per minute they could walk much farther without being stopped by claudication. In some, claudication did not come on at all.

3 Shortening the length of each step also delayed the onset of claudication.

4 When the patient with claudication in one leg walked with the knee of the affected leg held relatively straight (i.e. with a slight limp) thereby carrying his walking weight on the good leg for more than 50 per cent of the time and reducing the muscular tension in the affected leg, the onset of claudication was delayed.

5 It is logical to believe that these procedures reduce the demand for blood by the calf muscles.

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PSEUDOPERICARDITIS

SIDNEY SCHNUR, M.D.
Houston, Texas

The purpose of this report is to call attention to an error in cardiac auscultation not infrequently made by experienced physicians, as well as by students and interns. This discussion is believed relevant because (1) textbooks of physical diagnosis and cardiology do not discuss this subject, and (2) the error results in the diagnosis of pericarditis which has serious connotations.

Incorrect diagnosis is most likely to be made in thin chested patients with retracted interspaces and prominent ribs who have pronounced apical pulsations and in whom auscultation is performed with the Bowles-type stethoscope. If the instrument is placed over the area of precordial pulsation bridging across the ribs, the forward movement of the apex through the interspace during systole may produce on the stethoscope diaphragm a superficial scratching sound easily mistaken for a pericardial

friction rub (fig 1). This sound can be made to disappear (1) by increasing the pressure of the stethoscope against the chest thus preventing the to and fro movement of the skin against the diaphragm, (2) by placing the stethoscope between the ribs rather than bridging them or (3) by eliminating the diaphragm with the use of a bell-type stethoscope.

Outward Thrust of Intercostal Space in Systole

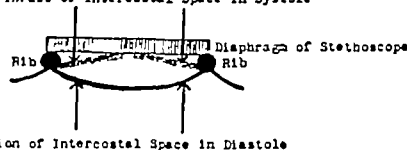


Fig 1—Schematic cross section of chest wall at cardiac apex indicating cause for pericardial rub

Figure 2 is a phonocardiogram of a patient in whom several observers heard a "pericardial friction rub." The tracing in A was taken with the diaphragm of the stethoscope between the ribs. The normal heart sounds are seen, and no murmurs or adventitious sounds are recorded. In B the diaphragm was placed so that it spanned the ribs in the same position. The tracing records a murmur in early systole, which was interpreted clinically as a pericardial rub. With each beat the apical area could be seen to project forward through the interspace, touch and brush along the diaphragm and then recede to the diastolic position. This was responsible for the "rub" heard clinically and recorded electrically.

In summary it is emphasized that when a pericardial friction rub is heard one should be certain it is not an extraneous sound caused by the forward movement of the apex beat against

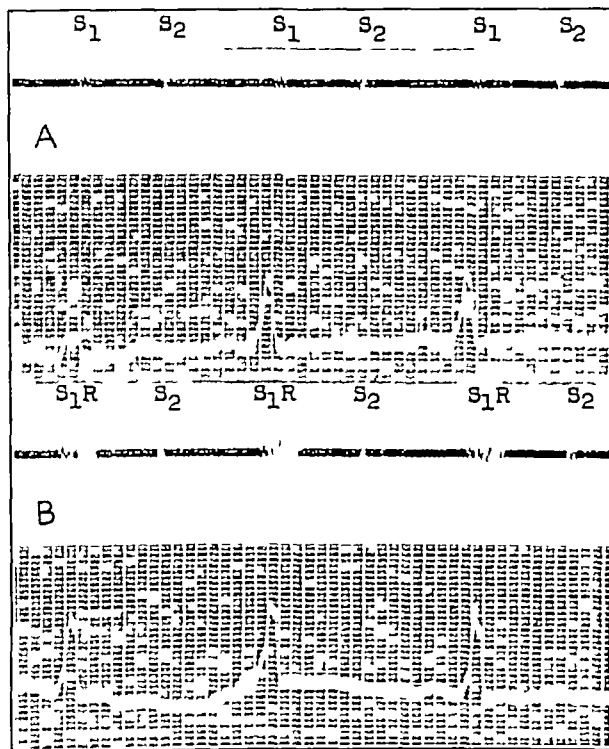


Fig 2—Phonocardiogram of pseudopericardial friction rub (S₁ denotes first sound S₂ second sound and R rub). A diaphragm of stethoscope placed between the ribs—normal first and second sound. B diaphragm of stethoscope bridging the ribs as indicated in figure 1—systolic rub immediately following first heart sound.

the diaphragm of the stethoscope. Lack of recognition of this artifact may result in the diagnosis of pericarditis. The body habitus of patients in whom this is most likely to occur has been described.

411 Medical Arts Building (2)

⁴ Morton D. J. Foot Biomechanics in Glasser O. Medical Physics Chicago Year Book Publishers Inc. 1944 p. 457. Elftman H. Skeletal and Muscular Systems Structure and Function, ibid p. 1420. Steindler A. Mechanics of Normal and Pathological Locomotion in Man Springfield, Ill. Charles C. Thomas, Publisher, 1935.
From the Department of Medicine Baylor University College of Medicine and Jefferson Davis Hospital.

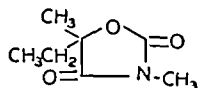
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to *New and Nonofficial Remedies*. A copy of the rules on which the Council bases its action will be sent on application.

R T STORMONT, M D Secretary

PARAMETHADIONE—Paradione (ABBOTT)—3,5-Dimethyl-5-ethyl-oxazolidine-2,4-dione— $C_7H_{11}NO_3$ —M W 157.17—The structural formula of paramethadione may be represented as follows



Actions and Uses—The actions of paramethadione are similar to those of trimethadione, but the drug may be quantitatively less active. Paramethadione is indicated in the treatment of petit mal epilepsy, and other conditions for which trimethadione is used.

Paramethadione is effective in a significant number of patients not benefited by trimethadione. The reverse is also true.

The side reactions resulting from paramethadione therapy are those produced by trimethadione, except that the incidence of photophobia and rash is diminished. The most serious side effect, as with trimethadione, is severe leukopenia, which occurs occasionally, and white blood cell counts should be made bi-weekly during the first two months of therapy and at monthly intervals thereafter.

Dosage—Adults, 0.9 Gm daily, initiated in divided doses. Thereafter, the dose should be increased or decreased to provide the smallest dose which will just control the symptoms.

For infants, the initial daily dose should be 0.3 Gm, for children 2 to 6 years of age, 0.6 Gm in divided doses.

Tests and Standards

Physical Properties—Paramethadione is a clear colorless liquid with an ester-like odor. At 25°C its specific gravity is between 1.1180 and 1.1240 and its refractive index is 1.449. It is freely soluble in alcohol, benzene, chloroform and ether and slightly soluble in water. The pH of a saturated solution is about 6.4.

Identity Tests—Add 1 ml of 1 N barium hydroxide to 5 ml of 0.5 per cent paramethadione. Within a few seconds a bulky white precipitate forms.

Add 10 ml of 25 per cent sodium hydroxide to about 2 Gm of paramethadione. Heat for 30 minutes on a boiling water bath. Over a free flame carefully evaporate the solution to 2 ml; a heavy precipitate separates. Chill and add hydrochloric acid dropwise until the mixture is acid to Congo red. Extract the acid solution with five 10 ml portions of ether. Combine the ether extracts and evaporate the ether on a steam bath. Recrystallize the residue from benzene. The needles of N-methylamide of a hydroxy-methylbutyric acid thus obtained melt between 83 and 85°C. Heat 50 mg of the needles with 50 mg of dry soda lime; a strong odor of methylamine results and the vapors turn litmus paper blue (distinction from trimethadione).

Purity Tests—Ash about 1 Gm of paramethadione accurately weighed; the amount of residue found is not more than 0.05 per cent.

Assay—Accurately weigh about 0.20 Gm of paramethadione into a 125 ml glass stoppered flask. Add 30 ml of alcohol and exactly 25 ml of 0.1 N sodium hydroxide. Insert the stopper and shake the flask for 20 minutes. Transfer the solution quantitatively to a 150 ml beaker, rinse the flask with a little water. Titrate with 0.1 N hydrochloric acid using cresol purple as the indicator. Run a blank determination. Subtract the volume of acid required by the sample from that required by the blank. Each ml of 0.1 N sodium hydroxide consumed is equivalent to 0.01571 Gm of paramethadione. The amount of paramethadione present is not less than 98 nor more than 102 per cent.

PARAMETHADIONE CAPSULES

Assay—Remove the contents of 20 capsules. Accurately weigh a quantity of liquid equivalent to 0.20 Gm of paramethadione and proceed as directed in the assay in the monograph for Paramethadione. The amount of paramethadione present is not less than 95 nor more than 105 per cent of the labeled amount.

PARAMETHADIONE SOLUTION

Identity Tests—The solution responds to the identity tests given in the monograph for Paramethadione.

Assay—Pipet a sufficient volume of paramethadione solution into a volumetric flask and dilute it to volume with alcohol to give a final concentration of about 10 mg of paramethadione per ml. Pipet 20 ml of the solution into a 125 ml flask and proceed as directed in the assay in the monograph for Paramethadione. The amount of paramethadione present is not less than 97.5 nor more than 102.5 per cent of the labeled amount.

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Capsules Paradione 0.3 Gm

Oral Solution Paradione 0.3 Gm per cc, 50 cc dropper bottles. A 65 per cent alcoholic solution containing 0.3 Gm of paramethadione in each cc.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See *New and Nonofficial Remedies* 1949, page 471). The following dosage forms have been accepted.

THE BIO-INTRASOL LABORATORIES, INC., BROOKLYN

Solution Natrovin in Oil with Benzyl Alcohol 4, 30 cc vials. A solution containing 20,000 I U of estrogenic activity in each cc of sesame oil. Preserved with 0.5 per cent chlorobutanol.

G W CARVER COMPANY, NEWARK, N J

Aqueous Suspension Thelestrin 10 cc and 25 cc vials. A suspension containing 10,000 I U of estrogenic activity in each cc. 1 cc ampuls and 10 cc vials. A suspension containing 20,000 I U of estrogenic activity in each cc. 10 cc vials. A suspension containing 50,000 I U of estrogenic activity in each cc. The vials are preserved with 0.5 per cent chlorobutanol.

Solution Thelestrin in Oil 1 cc ampuls, 10 cc and 25 cc vials. A solution containing 10,000 I U of estrogenic activity in each cc of sesame oil. The vials are preserved with 0.5 per cent chlorobutanol.

U S Patent 300,022

THE WILLIAM S MERRELL COMPANY, CINCINNATI

Aqueous Suspension Proliculin 10 cc vials. A suspension in isotonic solution of sodium chloride containing 10,000 I U of estrogenic activity in each cc. Preserved with thimerosal 1:20,000.

DIETHYLSTILBESTROL DIPROPIONATE (See *New and Nonofficial Remedies* 1949, page 378).

The following dosage form has been accepted.

THE BLUE LINE CHEMICAL COMPANY, ST LOUIS

Diethylstilbestrol Dipropionate in Oil 10 cc vials. A solution containing 5 mg of diethylstilbestrol dipropionate in each cc of peanut oil. Preserved with 0.5 per cent chlorobutanol.

Council on Foods and Nutrition

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council. JAMES R WILSON, M D, Secretary

Clapp's Baby Food Division, American Home Foods, Inc. Rochester N Y

CLAPP'S STRAINED FOODS—CREAMED VEGETABLES Ingredients: Carrots, rice, powdered whole milk, tomato paste, tamarac flour, lima beans, dehydrated potatoes, 50% cream, celery and dehydrated onion. **Analysis** (submitted by manufacturer)—Total solids 16.22%, fat 1.41% (ether extract) 1.26%, protein (N x 6.25) 2.41%, crude fiber 1.86%, carbohydrates other than crude fiber (by difference) 9.28%.

Vitamins and Minerals	Mg per Hundred Grams
Vitamin A	0.02
Thiamine	0.023
Riboflavin	0.128
Ascorbic acid	1.52
Niacin	0.44
Calcium	51.50
Phosphorus	19.60
Iron	0.13
Copper	0.29

Calories—0.58 per gram, 16.47 per ounce

Use—For use in the feeding of infants, convalescents and others requiring a soft diet.

CLAPP'S STRAINED FOODS—VEGETABLES WITH BACON, RICE AND BARLEY Ingredients: Carrots, bacon, tomato paste, celery, dehydrated potatoes, precooked rice, barley, salt and dehydrated onions. **Analysis** (submitted by manufacturer)—Total solids 12.89%, fat 0.95% (ether extract) 2.23%, protein (N x 6.25) 1.55%, crude fiber 0.62%, carbohydrates other than crude fiber (by difference) 7.44%.

Vitamins and Minerals	Mg per Hundred Grams
Vitamin A	3.30
Thiamine	0.07
Riboflavin	0.009
Ascorbic acid	1.77
Niacin	0.70
Calcium	21.3
Phosphorus	30.0
Iron	0.56
Copper	0.17

Calories—0.55 per gram, 16.16 per ounce

Use—For use in the feeding of infants, convalescents and others requiring a soft diet.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports

HOWARD A CARTER, Secretary

MECHANARE ICELESS OXYGEN TENT, MODEL 30, ACCEPTED

Manufacturer Oxygen Equipment Manufacturing Corp., Fitch Street, East Norwalk, Conn

The Mechanare Iceless Oxygen Tent, Model 30, consists essentially of two parts—a tent of transparent material, designed to cover the entire length of a hospital bed, and a cabinet, moving on four large casters, designed to control the rate and temperature of the inflowing oxygen

The dimensions of the cabinet are as follows

Height	140 cm. (55 in)
Width	62 cm. (24½ in)
Length	62 cm. (24½ in)
Weight	80 kg (178 lb)
Shipping weight	113 kg (250 lb)

Accessories include the transparent canopy made of vinyl plastic, an aluminum-painted metal cup, a filter impregnated with vegetable oil, aluminum painted deflector and a single-stage Bourden type regulator with silencer. The motor requires 60 cycle alternating current at 110 volts. Since it is stated to be a ¼ horsepower motor, the power consumption should be 186 watts and the required amperage 1.7 amperes.

Evidence was obtained from a source acceptable to the Council that this mechanism gave a satisfactory control of the temperature and concentration of oxygen under the tent.

The Council expressed the opinion that no tent, regardless

of make, should be run at less than 10 liters per minute. Actual determinations of oxygen concentration are essential if concentrations above 50 per cent are to be assured. The Council on Physical Medicine and Rehabilitation voted to include the Mechanare Iceless Oxygen Tent, Model 30 in its list of accepted devices.

U M A THERMOCOUPLE ACCEPTED

Manufacturer U M A Inc., 56 Cooper Square New York 3

The U M A Thermocouple is a skin thermometer. The apparatus is housed in a wooden case and consists essentially of a galvanometer connected with one interior and one exterior junction of dissimilar metals.

To operate the instrument, a supply of either direct or alternating current at 120 volts is required. The case measures 25 by 29 by 20 cm. (10 by 11½ by 8 inches), and the entire equipment weighs 5.4 Kg (12 pounds). The shipping weight is 9.1 Kg (20 pounds).

The exterior junction is at the tip of a holder and is connected to the apparatus within the housing by a cable, it can therefore be touched to successive parts of the skin, for instance and can be used to record the surface temperature. The interior junction is assumed to be at room temperature. Any disparity in temperature between the interior and exterior junctions results in distortion of the galvanometer string, and the resulting movement affects a mirror, which thus reflects a beam of light on a scale. The scale is graduated in both Centigrade and Fahrenheit degrees. The reference temperature is read

on a small thermometer fastened to the outside of the wooden case and at the beginning of the series of readings the instrument is calibrated by exposing the exterior junction to room temperature and adjusting the galvanometer until the reading on the illuminated galvanometer scale coincides with the reading of the small thermometer. Thereafter, the illuminated scale is assumed to give the temperature of the exterior junction directly.

The temperature of the external junction must not be interpreted immediately as the true skin temperature. There is generally some heat conduction along the wires that will influence the readings, various manipulations and external conditions, such as covering the skin, also affect the results. It must be assumed that persons operating instruments of this sort and undertaking to interpret the results are aware of the sources of error in skin thermometry and competent to make proper use of the results.

With these reservations, the Council on Physical Medicine and Rehabilitation voted to include the U M A Thermocouple in its list of accepted devices.

ASTARTE TWO-WAY STRETCH ELASTIC STOCKING ACCEPTED

Manufacturer Freeman Manufacturing Company, 900 West Chicago Road, Sturgis, Michigan

The Astar'te Two-Way Stretch Elastic Stocking provides steady pressure over large areas of the leg, which is useful in the treatment of, for example, varicose veins. It is described as full fashioned at heel, ankle, calf and knee and open at the toe. There are two types: (a) a garter hose, extending from the foot to just below the knee and held in place by a garter cuff; and (b) a knee hose, extending from the foot to above the knee and held in place by a rib knit soft top to be attached to hose supporters.

The Council obtained evidence that this article was of sturdy construction, comparing favorably with similar ready made articles at present on the market. The Council on Physical Medicine and Rehabilitation voted to include the Astar'te Two-Way Stretch Elastic Stocking in its list of accepted devices.

WALTON OXYGEN TENT HUMIDIFIER ACCEPTED

Manufacturer Walton Laboratories, Inc., 1186 Grove Street, Irvington 11, N J

The Walton Oxygen Tent Humidifier is an electrically operated device for increasing the water-vapor content of air by mechanical means. The water is pumped from the reservoir through a straight tube onto the surface of a rapidly spinning disk. A fine film of water hugs the disk and is thrown by centrifugal force against the breaker comb which atomizes water and makes a fine mist, hastening the process of vaporization at room temperature. A fan below the disk discharges the water particles into the atmosphere, where they change into water vapor. While this assembly is designed for use with oxygen tents the humidifier proper can be used independently for humidifying the air of a small room. The oxygen tent model has a capacity of 7560 cc (2 gallons) and vaporizes about 700 cc (1½ pints) of water per hour. It requires 110 to 120 volts of alternating current and draws 25 watts.

The unpacked article is 40 cm. in diameter (16 inches) and weighs 7.7 Kg (17 pounds). Packed for shipment it makes a package measuring 50 by 50 by 40 cm (19¾ by 19¾ by 15¾ inches) and weighing 9.1 Kg (20 pounds). The weights given include two rubber hoses with clamps, one hose has an outside diameter of 64 mm. (2½ inches), the other 70 mm. (2¾ inches).

Evidence from sources acceptable to the Council showed that the device functioned as represented by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the Walton Oxygen Tent Humidifier in its list of accepted devices.

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COXSACKIE DISEASE

In 1948, Dalldorf and Sickles¹ of the Department of Health, Albany, N. Y., reported the isolation of a new virus from the feces of patients in Coxsackie, N. Y., whose disease had been diagnosed as "paralytic poliomyelitis." This virus readily infects newborn mice, producing in them diffuse myositis.

Detailed studies of the Dalldorf virus were afterward undertaken by Melnick² and his associates of the Department of Pediatrics, Yale University. The new virus was successfully isolated from the stools of 7 patients previously given a diagnosis of "nonparalytic poliomyelitis," "aseptic meningitis," or "fever of unknown origin." It was not recovered from 29 local patients with various other infectious diseases. Serums from patients from whom the new virus had been isolated neutralized the virus in the convalescent stage and, to a lesser degree, in the acute stage.

Swiss mice usually 1 to 2 days old were inoculated intracerebrally or intraperitoneally with clinical material. Weakness, ataxia or paralysis of one or more extremities usually developed in two to ten days, followed by death about 24 hours later. The outstanding pathologic finding was extensive myositis of the skeletal muscles, especially of the limb muscles. Lesions were occasionally found in the heart muscle and brain. Aerobic and anaerobic cultures of the infected tissues showed no bacterial growth.

The agent readily passes through a bacterial filter. Sedimentation tests suggest that it is one of the smallest viruses, since most of the virus remains in the supernatant fluid after centrifuging at 18,000 rpm for 30 minutes. The virus is readily neutralized by homologous antiserum prepared by immunization of mice or monkeys. It is not neutralized by antisera from animals hyperimmunized against poliomyelitis or against any other heterologous viral infection. The agent has failed to produce disease in young adult monkeys, in 3-week-old mice, cotton rats or hamsters.

Two chimpanzees were each given one oral administration of the virus but showed no clinical signs or symptoms. Virus, however, was recovered from their feces for 12 days after this administration and from their throats for eight days. Neutralizing antibodies absent before exposure were present in their serum on and after the fourteenth day.

In one physician engaged in work with the new virus, there developed a febrile illness of eight days' duration, diagnosed as "fever of unknown origin." The new virus was recovered from his feces and nasopharyngeal washings during his acute illness. Neutralizing antibodies were not demonstrable in his serum before and during the early phase of his disease but appeared in increasing titer during his convalescence, reaching a maximum titer on the forty-third day.

Feces collected from different parts of the United States were frozen and sent to the Yale laboratory. Negative results were obtained from the New York City and Los Angeles areas. Positive isolations were made from pooled samples from Akron, Ohio, and Winston-Salem, N. C. The virus was also isolated from sewage and flies collected in six Connecticut and North Carolina cities and from flies collected in Texas.

Cross neutralization tests led the Yale investigators to believe there were two serologically distinct strains or types of the new virus. A third serologic type was afterward demonstrated by Sickles and Dalldorf³ in the New York area. Two other types were subsequently demonstrated by Sulkin,⁴ making five known types of this "pseudopoliomyelitis virus."

A more extensive epidemiologic survey was undertaken by Howitt⁵ of the United States Public Health Service, Atlanta, Ga., who isolated four different strains of this Coxsackie virus from frozen material from 97 persons in nine different states. Most of the isolations were from the feces, oral washings or blood, with an occasional isolation from the cord or brain. The patients manifested variable and ill-defined clinical symptoms. In children the picture was usually that of nonparalytic poliomyelitis or a mild fever accompanied with head ache and muscle pains. In adults Coxsackie infection was characterized by influenza-like symptoms.

Among the 97 cases 10 were fatal, in 5 of which the diagnosis was poliomyelitis. Both poliomyelitis and Coxsackie virus were recovered simultaneously from the spinal cord of one of these patients. Poliomyelitis virus alone was isolated from the feces of 2 patients who recovered. In most localities all isolations were of the same serologic type. Isolation of Coxsackie virus from the mouth washings of 6 out of 12 nurses who were asymptomatic but in contact with Coxsackie patients suggests the respiratory route of spread of this infection.

1 Sickles G. M. and Dalldorf G. Proc Soc Exper Biol & Med 72: 30 (Oct) 1949
2 Melnick J. L., Shaw E. W. and Curnen E. C. Proc Soc Exper Biol & Med 73: 340 (March) 1950
3 Sulkin S. E. and Farmer J. R. Proc Soc Exper Biol & Med 72: 113 (May) 1950
4 Howitt B. I. Proc Soc Exper Biol & Med 72: 113 (May) 1950

1 Dalldorf G. and Sickles G. M. Science 108: 61 (July 16) 1948
2 Melnick J. L., Shaw E. W. and Curnen E. C. Proc Soc Exper Biol & Med 71: 344 (July) 1949

To facilitate rapid and simple clinical recognition of Coxsackie infections, the Texas bacteriologists⁶ have used a complement fixation test. The legs of mice infected with this virus were ground with alundum to form a 33 per cent suspension in saline solution. Prolonged centrifugation was necessary to free the suspension of interfering nonspecific factors. Tests on patients and normal persons offer hope that a complement fixation test will prove to be of practical clinical value.

DRUG ADDICTION

Drug addiction has not received the serious consideration in recent years that it deserves. At the turn of the century much fiction was written in which narcotic addicts played a sinister role, a fact which indicated an awareness of the prevalence of this problem. World War I and the fabulous twenties also focused some attention on this outlet for human weakness. Narcotic traffic at that time was not as well controlled as was desirable. Law enforcement did not provide a fully restraining influence.

For some years, possibly because of the effectiveness of work done by the Bureau of Narcotics and state and local agencies, there has been a feeling of false security and an attitude adopted in some quarters that drug addiction does not constitute much of a health problem. Lack of knowledge has undoubtedly contributed to much of this indifference. Nevertheless, a serious problem does exist as is evident from the occasional reports issued by authorities who are close to it. Attention has been drawn repeatedly to the widespread use of marihuana, especially by the younger generation. Probably too few realize that this can be, and in some countries is, an extremely serious problem. More recently, increasing attention has been given to narcotics. It is not unusual, for example, to see newspaper titles such as "Dope Sales to Youths Boost Addicts 25 Pct," "Bare Huge Dope Ring," "Court Sentences 3 Drug Addicts for Robberies," "Senate Votes to Clip Wings of Dope Rings" and "3-Way Attack on Dope Evil Urged." Such attention is needed. According to some reports, narcotic dealers are competing and underbidding each other to get juvenile business and a Family Court judge in one of the larger cities of this country reports a 25 per cent increase in the use of narcotics among adolescents. This judge observed in his jurisdiction that the average age of the offenders is 17, although there are many who are 14 and 15. Apparently the drugs are obtained in pool halls, dope flats, school yards and elsewhere. Another observation made by the head of a police narcotics detail is that most peddlers who appear in Family Court are addicts themselves and will not divulge their source of supply for fear of retaliation.

The distribution of narcotics is not entirely a local problem that occurs sporadically. Nationwide drug rings have been disclosed time after time, and usually they are linked with other unsocial illegal activities such as crooked gambling and commercial vice. Recent information given before the Senate crime committee by the Commissioner of Narcotics of the Treasury Department, H. J. Anslinger, revealed several hundred members of a "combine" with branches in cities from Boston to Los Angeles and Seattle to Miami. An indication of the urgency for corrective measures was reflected in a recent action by the Senate, which passed a bill to empower the government to seize ships, boats, automobiles or airplanes used by narcotic rings. Under present laws a vehicle carrying marihuana or opium sometimes cannot be seized unless there has been an attempt to sell the drugs unlawfully. An independent action is reported as being undertaken by a special Senate crime-investigating committee which is inquiring into well organized syndicates in this field.

The medical profession has more than a casual interest in addiction to narcotics. More and more drugs are being developed, some of them synthetically, which are capable of causing addiction, and their properties are being brought forcefully to the attention of physicians. The Council on Pharmacy and Chemistry of the American Medical Association is particularly cognizant of this in its consideration of remedies for the relief of pain and other distressing symptoms. Marihuana, opium and opium derivatives and similarly acting substances precipitate medical, legal and social problems. A Physicians' Committee on Narcotics which has been formed in one of the larger cities to study drug addiction has been able to estimate its financial liability as well as the social and medical liabilities to a community. This committee proposes an attack on the source of supply, incarceration of facilities and intensive education. Dope peddlers are inveigling teen-agers into the use of narcotics free of charge until addiction occurs, after which a person will steal many dollars' worth of goods daily to buy drugs. The Committee lends emphasis to its warning by saying that present facilities are inadequate for stopping supplies, providing treatment, punishing peddlers and educating youth on the perils of dope. While organized educational programs can be started in schools, churches and in homes, and while the radio and press can help, much of the spade work must be done by those who are familiar with the physical and mental evils associated with the use of narcotics. In this physicians can provide inestimable help and should be intensely interested as practitioners and as citizens. Laws alone will not correct the situation.

Fortunately, drug addiction is receiving increasing attention throughout the world. As the source of supply is limited by the prohibition of export and by other protective measures the problem will decrease. Consideration of the problems of drug addiction in other

6. Manire, G. P., Sulkin, S. E. and Farmer, J. W. *Proc. Soc. Exper. Biol. & Med.* 73: 341 (March) 1950.

countries is helpful to those who take this problem seriously, various reports provide interesting information. For example, the chewing of coca leaves and the smoking of marihuana in South America¹ reveals the relation between lack of adequate education and drug abuse. Moral family and community responsibilities mean nothing to those physically dependent on the drug. "In intoxication from marihuana the subconscious centers are in some way freed from the inhibitory influence of the conscious centers. Therefore the essence of the ecstatic visions of the dreams, and particularly, of the illusions, hallucinations and acts performed under the influence of the drug nearly always corresponds to the real personality of the individual." It has been known for a long time that marihuana has a provocative action towards the

commission of offenses or crimes. The marihuana smoker actually realizes what is happening, but (is not) able to prevent the succession of events." One example is sufficient to show the lengths to which marihuana smokers, especially when congregated, can go. To quote from a lecture on the subject, "During these meetings a scene is often presented typical of the old-time madhouse: men in a complete state of intoxication, delirious hilarity, with all the intermediary stages, flights and pursuits, cries and uproar, indecent songs and bawdy verses, always dedicated to the drug and in which African words are intermingled, some already in a furious state or in an aggressive attitude, become dangerous, others, in a state of prostration, languish or exhausted, sleep profoundly."

One of the reasons for some of the indifference now existing is perhaps the confusion between "drug addiction" and "drug habituation." Too often the terms are interchanged. The Expert Committee on Drugs Liable to Produce Addiction of the World Health Organization has suggested the following definition:

"Drug addiction is a state of periodic or chronic intoxication, detrimental to the individual and to society, produced by the repeated consumption of a drug (natural or synthetic). Its characteristics include (1) an overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means, (2) a tendency to increase the dose and (3) a psychic (psychological) and sometimes a physical dependence on the effects of the drug." Habit-forming drugs, on the other hand, have been given the following definition:

"A habit-forming drug is one which is or may be taken repeatedly without the production of all of the characteristics outlined in the definition of addiction and which is not generally considered to be detrimental to the individual and to society."

This Committee has recommended intensification of medical research on drug addiction. While such research is needed and should provide much helpful

information, the medical profession already has sufficient information to permit awareness of some of the pressing phases of drug addiction. By being alert itself the profession can stimulate others to lend their aid in the prevention and correction of this vicious health problem. This is a field in which the medical profession can assume forceful leadership and at the same time demonstrate the effectiveness with which local problems can be solved by local groups.

Current Comment

EMPLOYMENT OF THE PHYSICALLY HANDICAPPED

It has been estimated that there are probably seven to eight million physically handicapped persons in the working population of the United States. About six million are said to be employed, a quarter of a million are disabled each year and about a million are either seeking work or can be rehabilitated and trained for work. Some are said to be in jobs for which they are not best suited, and this provides a hardship for the handicapped and a burden for the employer, even the taxpayer. Obviously it can be a cause of considerable waste. One of the solutions is better understanding and information, and attempts are being made to give more attention to the special aptitudes of these persons and to increased opportunity for training for better jobs. Successful application of such principles heightens productiveness, increases earning power and affects tremendously the morale. Surveys conducted by the Department of Labor and the Veterans Administration, the Civil Service Commission, the United States Chamber of Commerce, the National Association of Manufacturers and the Accident Prevention Department of the Association of Casualty and Surety Companies are claimed to produce convincing evidence that when properly placed, the physically handicapped worker can offer a performance as good as or better than the unimpaired worker. While the first week of October has for several years been designated as National Employ the Physically Handicapped Week, many private organizations and public-spirited persons do not wait for this week to give consideration to the employment of the physically handicapped; they consider each week what can be done. Much has already been accomplished, but much also remains to be done. Communities have excellent opportunities to solve this problem locally. The aid of physicians should be sought, as proper placement in many instances will depend on medical advice. To gain this end, members of the medical profession can offer to advance their services. Any community can begin a program to foster rehabilitation, and community service organizations can play important roles. Physicians, particularly the general practitioner who sees much of the patients at some time, can aid in the forceful application of principles of rehabilitation. It is a worth while investment of time and interest.

¹ Wolff, P. O. Problems of Drug Addiction in South America, *Brit J Addiction* 46: July 1949

PROCEEDINGS OF THE SAN FRANCISCO SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN SAN FRANCISCO, JUNE 26-30, 1950

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 26

The House of Delegates convened in the Concert Room of the Palace Hotel, San Francisco, and was called to order at 10 a. m. by the Speaker, Dr F F Borzell

Appointment of Dr William Bates Vice Speaker, Pro Tem

The Speaker announced that Mrs Reuling wife of Dr James R Reuling, New York, Vice Speaker, had suffered a sudden illness on her way to the session, and Dr Reuling would therefore, not be able to be present at the session, and he asked for permission to appoint a Vice Speaker Pro Tem On motion of Dr Allen H Bunce, Georgia, seconded by Dr H H Shoulders, Tennessee and carried, permission for the Speaker to appoint a Vice Speaker Pro Tem was granted and the Speaker appointed Dr William Bates, Pennsylvania to that position

Preliminary Report of the Reference Committee on Credentials

Dr Edward P Flood, Chairman, stated that over 170 delegates had already registered, and the Speaker announced that since there was a quorum present, the House was declared open for business

In Memoriam

The Speaker requested the members of the House to rise while he read the following names of delegates and officers who had died since the last annual session, stating that Dr Archibald E. Cardle, Minnesota, who was to have served as a delegate for the first time at this session, had died in a plane crash a day or two ago

(The dates following the names indicate years of service in the House or as Officers of the Association)

Irvin Abell Kentucky 1922 1924-1928 1930 1935 President Elect
1937 1938 President 1938-1939 Member Council on Scientific Assembly
1931 1934 Chairman Council on Scientific Assembly 1936-1937
Willard Bartlett, St. Louis Missouri Vice President 1922 1923
Milton Board Kentucky 1914 1916
W Earle Chapman Michigan 1927
Orra F Covert West Virginia 1909
Harry Friedenwald Maryland 1907 1908
T R K. Gruber Michigan 1937 1949
Charles L Harsha Pennsylvania 1922
Andrew M Harvey Illinois 1913 1914 1916
John F Hassig Kansas 1927 1933 1935 1946
George D Head Minnesota 1912 1918 1919
Roy B Henline New York N Y Section on Urology 1943 1945
1948.
A Parker Hitchens U S Army 1922
Joseph W Kimberlin Missouri 1923
Thomas K Lewis New Jersey 1941 1949
Edward B McDaniel Portland Oregon Vice President 1924-1925
Stephen R Monteith New York 1945 1949
William Gerry Morgan District of Columbia 1920-1926 President
Elect 1929 1930 President 1930-1931
H Leslie Moore Texas 1941 1943
Lloyd Noland Alabama 1943-1949 Member Judicial Council 1935
1937 1943-1948
Robert L Nourse, Idaho 1907
W Glendower Owen Louisiana 1903
Cadis Phipps Massachusetts 1940
George R. Proctor Idaho 1926 1929
John W Riley Oklahoma 1916-1917
Ernest E. Shaw Iowa 1949
J Garland Sherrill Kentucky 1905 1906
Jorge del Toro Puerto Rico 1919
Hugh H Trout Virginia 1934-1935 Section on Surgery General and
Abdominal 1941
G M Van Poole Hawaii 1933 1936
Frederic A. Washburn Boston Mass Section on Hospitals 1912

Invocation

The Very Reverend Bernard N Lovgren, Dean of Grace Cathedral then delivered the invocation

Adoption of Proceedings of Washington Clinical Session

The Secretary presented the proceedings of the Washington Clinical Session Dec. 6 9 1949, which were adopted on motion of Dr George W Kosmak, New York, seconded by Dr Walter E Vest, West Virginia and carried.

Tellers

The Speaker appointed the following to serve as tellers at this annual session

Fred H Muller Chairman Illinois.
H Gordon MacLean California
Charles L Shafer Pennsylvania
Raymond F Peterson Montana
Roland W Stahr Nevada.

Roll Call

At the request of the Speaker, the Secretary called the roll, and those who entered after their names had been called reported to the Secretary

Address of Speaker, Dr F F Borzell

The Speaker, before reading his address, appointed as sergeants at arms Joseph F Londrigan, Chairman New Jersey Samuel J McClendon, California, and Felix J Underwood, Mississippi

With the Vice Speaker, Dr William Bates in the chair, the Speaker presented the following address, which was referred to the Reference Committee on Reports of Officers

Gentlemen —In opening this House of Delegates, the Speaker does so under the stress of conflicting inclinations The obvious and most natural inclination is to expedite our business in order to enjoy fully the generous hospitality of our genial hosts, the California Medical Association and the San Francisco County Medical Association. The scientific program is also unusually attractive These combined are a great temptation to cut business short Over against this urge, however, is the cold fact that the responsibilities of this House call for a close prayerful attention to the tasks at hand

We have seen, it is true, our warfare against the forces that would destroy us progress favorably in the last year We have won many minor skirmishes and some major battles, but the enemy is not yet annihilated. The evil spirit of Fabian socialism is still riding the stalking horse of Communism It is becoming more and more evident that we are the spearhead of attack that if successful will spring the gates wide open to the hordes of statism

On the other hand, while we are waging these battles, other more intimate and immediately more ominous clouds are appearing There are policies being adopted by certain allied medical agencies that if we do not combat, can only result in serious deterioration in the quality of service we, as physicians, will be able to render

This body has the serious responsibility of continuing to keep the American Medical Association a positive champion of principles which will guarantee for the American doctor his independence and healthy conditions of operation in areas requiring the utilization of these allied agencies for example, hospitals

Narrow self interested economic policies of these agencies can and will be detrimental to the assurance of good medical service. It is our duty, as the House of Delegates to guard against attacks from within as well as from without

It is not the prerogative of the Speaker to indicate any specific legislation It is for you, the representatives of American medicine to act with courage, deliberation and Godlike devotion to duty

Invidious statements quoted in the papers as having come from the mouth of Oscar Ewing, call for no retorts from us. Childish name calling can only spring from a feeling of pique and consciousness of an untenable position.

We have been and will continue to be secure in our position.

There are a few details concerning the management and effective functioning of this House which should be considered. Several years ago this House adopted a complete revision of its Constitution and By-Laws. Since then changed conditions have called for numerous amendments. These amendments were not always strictly consistent with our Constitution and By-Laws. Speedy adoption may result in confusion. It has become quite evident that more deliberate consideration must be given to amendments to avoid conflict or confusion. This fact will doubtless be obvious to all during this session. You will be called on to reword some vital portions of the Constitution and By-Laws.

In order to provide for more thoughtful deliberations in the future the Speaker requests that for the next year, at least, the House authorize the appointment by the Speaker of an Interim Committee on Constitution and By-Laws, to consist of three members of the House of Delegates with the following ex officio members without vote:

The Speaker of the House
The Vice Speaker
The Secretary of the Association, and
One member of the Board of Trustees

This committee should be authorized to consider such revisions or amendments as are called to its attention, then to recommend to the House carefully worded amendments that will be in conformity to good parliamentary usage and meet legal requirements. The Speaker would also suggest that this committee consider the advisability of a permanent standing committee on Constitution and By-Laws. I believe this will provide very necessary machinery to relieve the House of details that consume time and will result in more deliberate action.

It is, of course, understood that final action still rests with the House. (Here the Speaker remarked that at the last session of the House a change in the By-Laws was illegally adopted so that under 'Tenure and Obligations of Membership' the words "one year" were changed to "six months" and should now read "one year" as previously.)

Another matter that has given the Speaker much concern is a growing tendency for the House to authorize appointment of committees of the House to consider and investigate matters which are the function of already established Councils and Bureaus. This has not only caused unnecessary expense but frequently a duplication of effort and a waste of time and energy on the part of those serving.

The Speaker fully recognizes the authority of the House to take whatever action necessary by way of investigation and approval or disapproval of any activities of the Association, be they administrative, executive or scientific. It would seem advisable, however, in the interest of efficiency and sound economy to weigh carefully every recommendation for these special committees.

I would respectfully ask, then, that reference committees weigh carefully such proposals before making recommendations to the House.

The Speaker must again emphasize the duty of reference committees to grant a hearing to any member of the Association or anyone who has anything to offer which will assist them in their deliberations. There are times when executives of the Association, component societies and executives of allied organizations can be very helpful in resolving moot problems.

Such persons should be invited to present their views to the reference committees.

The sponsors of resolutions should be present at reference committee hearings to give the committee the benefit of their views and the reasons for the given resolution. Each member of the House should consider it as much a duty to attend reference committee hearings on matters of interest to him as it is for him to be present at the sessions of the House.

May I take this opportunity to thank various members of the House for the interest they displayed during the interim between sessions as evidenced by letters and communications received.

REFERENCE COMMITTEES

The Speaker now formally presents the following reference committees. It has been necessary to make several changes in the published list.

During the presentation of the reference committees the Speaker suggested that the name of the Reference Committee on Medical Education be changed to Reference Committee on Medical Education and Hospitals.

SECTIONS AND SECTION WORK

Edward L. Compere, *Chairman*, Section on Orthopedic Surgery
Willis H. Huron, Michigan
Everett C. Fox, Section on Dermatology and Syphilology
George M. Fister, Utah
Roscoe H. Reeve, Wyoming

RULES AND ORDER OF BUSINESS

Jesse D. Hamer, *Chairman*, Arizona
Charles E. Wagner, Delaware
Frank W. Snow, Massachusetts
William A. Hyland, Michigan
George A. Earl, Minnesota

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

E. Vincent Askey, *Chairman*, California
George A. Unfug, Colorado
James L. Whitcomb, Pennsylvania
John K. Glen, Texas
Charles T. Stone, Section on Internal Medicine

MEDICAL EDUCATION

Leonard W. Larson, *Chairman*, Section on Pathology and Physiology
Edgar V. Allen, Section on Experimental Medicine and Therapeutics
William D. Stovall, Wisconsin
Harold B. Gardner, Pennsylvania
Andrew A. Eggston, New York

LEGISLATION AND PUBLIC RELATIONS

John W. Cline, *Chairman*, California
Mather Pfeifferberger, Illinois
John J. Curley, Massachusetts
Howard B. Goodrich, Missouri
Ross D. Wright, Washington

HYGIENE AND PUBLIC HEALTH

Albert F. R. Andrusen, *Chairman*, New York
W. Palmer Dearing, United States Public Health Service
Louis M. Orr, Florida
James Q. Graves, Louisiana
J. Morrison Hutcheson, Virginia

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Walter E. Vest, *Chairman*, West Virginia
Julian P. Price, South Carolina
Allen T. Stewart, Texas
Carl A. Lincke, Ohio
Thomas A. McGoldrick, New York

REPORTS OF OFFICERS

Charles F. Strosnider, *Chairman*, North Carolina
Ralph B. Eusden, California
William H. Halley, Colorado
Charles H. Richardson Sr., Georgia
Everett P. Coleman, Illinois

CREDENTIALS

Edward P. Flood, *Chairman*, New York
John F. Conway, New Mexico
Karl S. J. Hohlen, Nebraska
L. A. Alesen, California
Gerald V. Caughlan, Iowa

INDUSTRIAL HEALTH

Patrick J Sullivan, *Chairman* Massachusetts
Robert H Hayes, Illinois
J Stanley Kenney New York
James Z Appel, Pennsylvania
Deering G Smith New Hampshire

EXECUTIVE SESSION

David Allman, *Chairman*, New Jersey
Hoyt B Woolley Idaho
F S Crockett, Indiana
John M Porter, Kansas
Bruce Underwood Kentucky

INSURANCE AND MEDICAL SERVICE

E P McNamee, *Chairman*, Ohio
John F Burton, Oklahoma
Raymond W McKeown, Oregon
Warren L Allee, Missouri
Alfred S Hartwell, Hawaii

MISCELLANEOUS BUSINESS

R B Robins, *Chairman*, Arkansas
George Braunlich, Iowa
Thomas A. Foster, Maine
George W Kosmak, New York
Edward H Cary Texas

PUBLICITY

Raymond L Zech, *Chairman* Washington
Thomas P Murdock, Connecticut
William L Estes Jr, Pennsylvania

The Speaker requested authorization to appoint a special Reference Committee on Emergency Medical Service. On motion of Dr William Weston, Section on Pediatrics, seconded by Dr H H Shoulders, Tennessee and carried the House authorized the appointment of such committee and the Speaker appointed the following

Walter P Anderton *Chairman* New York
Eugene F Hoffman California
Hugh H Hussey Jr District of Columbia
H G Hamer Indiana
Stephen E Gavin Wisconsin

Distinguished Service Award

Dr L H Bauer, Chairman of the Board of Trustees presented a report of the Board, as follows

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees. The Board of Trustees has selected by ballot the following names for presentation to the House of Delegates in alphabetical order. Dr Everts A Graham, St Louis. Dr Torald Sollmann Cleveland and Dr Francis Carter Wood New York.

Dr Bauer read to the House information concerning Drs Graham Sollmann and Wood.

The tellers spread the ballot and the Secretary announced that Dr Graham had received 122. Dr Sollmann 20 and Dr Wood 40. The Speaker declared that the House had selected Dr Everts A Graham, St Louis, as the recipient of the Distinguished Service Award for 1950.

Address of President Ernest E Irons

The Speaker resumed the chair and called on Dr Ernest E Irons President to present the following address which was referred to the Reference Committee on Reports of Officers

PROGRESS REPORT ON AMERICAN MEDICINE

Physicians of this nation are deeply concerned with the prevention of sickness and injury of all our fellow citizens. The care of the sick, the prevention of disease and the alleviation of suffering are the center, the impelling motive, the inspiration, around which are built all the activities of the medical profession. The universally recognized accomplishments of medicine by the combined efforts of research and the application of new knowledge in careful and intelligent practice have

been attained in a nation of free enterprise and, in the past sound economy. The problems of medicine are closely integrated with the economic and social conditions of our people. They are mutually interdependent.

The application of science and discovery make possible continuous advances and new achievements in prevention and control of disease—better medicine. There are however, inherent limitations in medicine, physicians cannot create bodily immortality. Death cannot be prevented, it can only be postponed. All that the physician can do about death is to change age and cause. Proponents of nationalized medicine seem to assume that there is some absolute standard of medical practice and talk glibly of "adequate" medical care as if they could set a standard and a limit to medical progress. Medicine is not static. With other men here, I have seen changes in medicine in the past 50 years, during which time what was regarded as good medical practice has become entirely inadequate today. By the very nature of medical progress, it can never attain perfection because the goal moves ever in advance. One thing is certain however, you cannot improve medical care simply by setting up a uniform assembly line system—which always has and always will make it worse. Already in England there is now being advertised private insurance to protect against the dangers and delays of government care. This indicates that even in Socialist England the people are finding that they must turn again to private enterprise, to protect themselves against the evils of socialism.

This development in England is so significant that I wish to read a few sentences from an advertisement of the British United Provident Association which appeared in the *London Punch* May 10 1950.

"Which would you choose in the event of illness? Private treatment or the General Ward!

"The National Health Service ensures that everyone receives medical and, if necessary, hospital treatment in the event of illness or operation.

To many people, however, the necessary formalities, the waiting and, finally, treatment in a general ward are disconcerting both in anticipation and in practice.

In view of the fact that serious illness or the need for operation so often strikes without warning, it is no more than obvious wisdom to safeguard yourself and your family without delay.

We as physicians are resolved that the continuation of the marvelous progress in America shall not be thwarted or diverted by the introduction of a foreign ideology which, as in past decades, now elsewhere before our eyes, is destroying the quality of medical care and delaying the correction of obvious faults. We are well aware of the social and humanitarian necessity of provision for the health care of the indigent and the victims of ill fortune whose plight is due to both economic and medical factors. In former days this was accomplished by local communities and more recently by many excellent city and state aid programs to which physicians already have given personal and professional support. This aid can be supervised best under local administration and it then can reach the needy without being diluted by the impositions encouraged by socialistic promoters of the welfare state. We already have achieved in this country the best medical care in the world.

Last month we were favored by the pronouncement of a spokesman for the political backers of government medicine to the effect that now they would be pleased to give up the program for compulsory sickness insurance if medicine could offer any other solution for improving the medical care of the nation. This is an official confession of the bankruptcy of the program plaintively described as "so close to the heart of their political leader. Recent political events have no doubt played some part in recasting Act II of this modern political Comedy of Errors. An intelligent expansion of sound and helpful programs will succeed without unnecessary national legislation. We shall do best by encouraging more individual responsibility more self help and fewer treacherous governmental crutches more honest statements of fact and less deliberate deception and playing with the truth more willingness to work and less national political tinkering.

OUR MEDICAL AND ECONOMIC PROBLEM

The objectives of medicine and their relation to our entire American economy are now much better understood by the people of this country than at the outset of our educational campaign. Let us review the progress of this critical fight of medicine and of all patriotic groups to defend our America from the external and internal attacks of socialism and its twin, communism. Prior to two years ago the insidious growth of socialistic practices promoted in the name of social and economic welfare had placed businesses, medicine and even legitimate government on the defensive. In this gigantic malignancy a few ambitious but unscrupulous men did not hesitate to falsify statistics and sow seeds of discontent and distrust, audaciously using the familiar Marxian technic of the "misery of the masses" in a country the people of which are better fed, more prosperous and more productive than in any nation in history.

The subjugation of medicine to political purposes has always been an early objective in the promotion of the socialist welfare state. Nibbling at the personal responsibility, initiative and freedom of the individual by supposedly innocent and superficially attractive welfare measures went on for years without much opposition. Physicians and others interested in the welfare of the public failed to recognize this process of undermining the originally strong pioneer spirit of our citizens. As professional men and as citizens we failed to realize the gravity of this attack on the moral foundations of our country. After the preliminary softening of the national fiber by alleged temporary welfare promises and benefits, the direct attack on medicine was intensified and medicine found itself in the front line in defense not of medicine alone but of the American way of life.

THE OFFENSIVE

Now, after two years, the real threat of socialism is better understood by our citizens, and physicians together with other patriotic groups are on the offensive. Much of the previous national inertia which affected business and labor groups as well as medicine has been overcome. Thousands of nonmedical citizens and leaders, at first impressed by the false premises of arguments for compulsory sickness insurance now realize its inevitable destructive effects on quality of medical care, on the independence of the American citizen and on the economic stability of the nation. Still others, though now informed, unfortunately hesitate to "lose face" by admitting that they were deceived. Members of the medical and allied professions are better united in understanding and in purpose than ever before and are determined that there shall be no shackling of medicine and no compromise with the evils of socialism.

A vigorous campaign for voluntary insurance by medically sponsored groups and by commercial insurance companies has brought hospital insurance to more than 68 million, and protection against surgical costs to 40 million and for medical costs to 16 to 18 million persons. Sixteen thousand persons are being added daily to those participating in voluntary health insurance plans. Meantime the professional accomplishments of the medical profession in the prevention and cure of disease have proceeded apace with continuing reduction of illness and lowering of death rates. This progress will be still more rapid when we have disposed of this socialist threat to America.

The general public has been made increasingly aware of the dangers of socialized medicine and socialism, and resolutions in opposition to compulsory health insurance and in favor of voluntary health insurance have been adopted by more than 10,000 organizations. More than 6,600 are nonmedical and include farm bureaus, the American Legion civic and women's clubs, religious groups, insurance groups and other professional organizations. This is indisputable evidence of the disgust of thinking persons across this land independently of the political parties, for the insidious socialistic programs which will cost the average man more in taxes than he can ever receive in benefits.

CONFUSION

A few months ago it became evident that a bill for the nationalization of medicine could not pass this Congress, and so the program of its proponents was changed and an attempt

was made to introduce further fragments of socialism by means of small federal contributions to this or that new welfare agency. A number of such bills were introduced carrying almost no financial commitment, obviously intended to set up a pattern—a foot in the door—so that later these little bureaucratic crutches could grow. In other bills it has been proposed to give federal aid to projects which affect many phases of our economic, educational and medical life. Sometimes these proposals are urged on the basis of alleged need and at other times recommended as progressive social projects, often with the disclaimer of any present intent of local interference by government bureaucracy. No mention is made of the Supreme Court decision of 1942, which asserted the right of government "to regulate that which it subsidizes."

The American people would not now accept socialism as a substitute for our American democracy. However, there still is much confusion in the minds of the public and of many physicians as to the importance of the so-called fringe bills. For the past 15 years the American people have been conditioned to the gradual growth of welfare projects not only in medicine but in other fields of attempted economic planning, which historically in other nations have always ended in economic dictatorship. Economic planning and welfare projects have been promoted as devious alternative measures in preference to meeting economic and social difficulties on the basis of individual responsibility and incentive of each citizen.

Responsibility for the social welfare of our people, in which all physicians as well as public-spirited citizens are deeply interested, has been gradually shifted from the local community and the state to a federal bureaucracy on the fallacious ground that only federal government could take care of exaggerated claims of alleged tremendous gaps in social and medical care. Great advances in medical and social care already made at state and local levels are interfered with by severe taxation of a wasteful federal government which always exacts an excessive brokerage for the support of the ever growing bureaucracy parasitic on each project. Thus the public and the medical profession have been conditioned to progressive steps which tend to remove from group after group of our citizens the necessity of personal effort. This process of softening and regimentation, whether by direct subsidy or by federal loans to small businesses, has been tolerated by this nation more readily following its temporary regimentation by total war.

A welfare measure, superficially attractive and perhaps relatively innocent in itself, forms a precedent, it is then easy to add a further welfare measure on the supposition that it is similar and perhaps complementary to previous legislation. Thus it is not surprising that many physicians and other thoughtful groups find it difficult to determine where such legislation should stop. This difficulty is also encountered by members of Congress who in the past have taken positions of compromise, which no doubt were strategically expedient at the time but which have persisted to plague those who now see the entire economic and social picture more clearly. A number of laws with a socialistic trend were formerly favored by members of the Congress before they had opportunity to think things through.

The only sound and consistent position for American medicine and the American people is that of opposition to any measures related to the progress of the socialist welfare state. Worthy objectives have been habitually used to camouflage national proposals essentially dangerous to our medical, social and economic well-being. These objectives can be attained more safely and effectively by local and state efforts after appropriate thorough education of the public.

The offensive battle of the medical profession, in addition to outspoken opposition to the socialization of medicine and the socialization of America, must include opposition to fringe bills. We must clear our thinking from the muddle in which it has been placed by the insidious growth of welfare measures of the past 15 years, many of which were surreptitiously planned as steps toward socialism. Help for the needy and distressed can be supplied without destroying their individual freedom and subjecting them together with their fellow citizens to slavery of the police welfare state.

The successful program of local and state service to the sick and needy must not be nullified by dominating interference of selfish federal bureaucracies. Programs for preventive medicine must be advanced and not diverted by the destructive effects of socialized medicine on the quality of medical service to the public.

NATIONAL SOLVENCY

Medicine will flourish and progress only in a sound economy. Our efforts, therefore, must concern not only the interests of good medicine but also the maintenance of free enterprise and solvent finance in American life. We must labor to maintain the personal freedom and initiative of our citizens. Our funds then will be available to help the needy and improve the conditions of other citizens by local measures, citizens will not lose their initiative and sense of personal responsibility to the state. In this national emergency, whether physicians or business men or farmers or laboring men, we must not be guilty of cowardice or unwillingness to stand up and be counted. We shall have to oppose even some of our medical friends who have been deceived by the rosy red picture of the welfare state.

This is not a partisan political fight, it is a crusade in which every right thinking doctor who values freedom of opportunity, free enterprise and the maintenance of high standards of medical practice must join.

You, the members of this House of Delegates represent all the states in the Union. It is by your efforts and influence that every doctor can be shown the part which he must play in the present crisis. We as physicians have traditionally shunned political activities. During war physicians have always joined in efforts to save our republic. Now is the time again to come to the rescue of our country, this time to help save it from socialism.

Physicians in every community must accept and take on the responsibilities of citizenship. First they must register and then vote. A survey taken recently disclosed that 13 per cent of physicians in the localities surveyed were not registered, in fact, 22 per cent did not vote. In this respect they are not different from other well meaning and patriotic groups, for example, 26 per cent of bank employees and executives were not registered and 32 per cent did not vote. The same survey revealed similar figures for pharmacists and ministers and for members of chambers of commerce.

We, as physicians, must pause in our practice long enough to inform ourselves of the issues which confront our country. We must realize that the country is being undermined by treacherous proposals initiated in the name of doing good. We must take an active part as citizens in our government. The problem is simply stated. Compulsory health insurance is socialized medicine despite recent frenzied political efforts to escape the issue. To socialize medicine is to socialize America. The effectiveness of our city, county and state aid programs for the needy and indigent, the further development of preventive medicine, the rapidly growing professional and commercial voluntary insurance against the financial hazards of illness, the multitude of fraternal and religious charitable and self-help agencies, must not be jeopardized and ruined by the imposition of deceptive and wasteful socialistic proposals advanced by those who hope to profit politically at the expense of the freedom of the American citizen.

Do we as a people wish to rush down the socialist road after Great Britain? The answer obviously is "no," but we must present forcefully our convictions. We as physicians and citizens shall not relax until, with other patriotic groups in business on the farm, in the other professions and labor, we shall have rolled back the socialist flood that threatens to engulf our American freedom and our solvency.

As I conclude my year of service as President may I thank you again for the honor you have done me, for your own efforts in our crusade and, most of all, for your support which has made a trying and difficult year much easier. Among the compensations have been the cooperation of the general medical profession and the unity of physicians and of other patriotic groups in our fight to maintain freedom of medicine and freedom of America.

Presentation of Dr Elmer L Henderson, President-Elect

The Speaker presented to the House the President-Elect, Dr Elmer L Henderson.

Report of Board of Trustees

Dr Louis H Bauer, Chairman, Board of Trustees, presented the following report of the Board as printed in the Handbook, omitting the section on Reimbursement for Collection on page 45, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary, with the exception of the report of the Committee on General Practice which was referred to the Reference Committee on Medical Education, the report of the Council on National Emergency Medical Service which was referred to the Reference Committee on Emergency Medical Service, the report of the Commission on Chronic Illness, which was referred to the Reference Committee on Insurance and Medical Service, the report of the Coordination Committee on Legislation which was referred to the Reference Committee on Legislation and Public Relations, and the portion of the report of the Board referring to membership dues, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

To the Members of the House of Delegates of the American Medical Association

The following report of the Board of Trustees is respectfully submitted.

FINANCIAL STATEMENT

The official reports of the Treasurer and the Association's auditors are appended as a part of this report.

In the year ending Dec. 31, 1949, the American Medical Association membership responded to the voluntary assessment placed on it by the House of Delegates by remitting through their constituent state and territorial medical associations the sum of \$2,289,958.23. Disbursements from this fund in the conduct of the National Education Campaign amounted to \$1,613,812.78. The balance \$676,145.45, unexpended on Dec. 31, 1949, was placed in reserve to meet further demands of the program.

Ordinary Income in 1949 amounted to \$5,379,049.95 as compared with \$5,166,107.08 in 1948, and was as follows:

Fellowship dues	\$ 73,560.00	
Interest on investments	152,857.32	
Miscellaneous receipts	9,336.43	
Annuity premium refund	25,124.04	
	<hr/>	\$ 260,877.79
Periodical subscriptions	\$2,453,644.56	
Periodical advertising	2,431,837.63	
	<hr/>	4,885,482.19
Books, pamphlets and reprints		232,689.97
Total Ordinary Income		<hr/> <hr/> \$5,379,049.95

Income from Fellowship dues increased to \$73,560.00 in 1949 from \$73,185.00 in 1948.

Interest on investments amounted to \$152,857.32 in 1949, as compared with \$138,912.11 in 1948.

The annuity premium refund of \$25,124.04 represents an adjustment to a lower rate of the premium applicable to the first five year period of the contract covering employee annuities. Premiums payable in succeeding years will be correspondingly lower.

Subscription income from all periodical publications was \$2,453,644.56 in 1949 as compared with \$2,339,309.34 in 1948, and advertising income from the same source was \$2,431,837.63 in 1949 as compared with \$2,519,305.84 in 1948.

Income from books, pamphlets and reprints increased to \$232,689.97 in 1949 from \$77,693.05 in 1948. A demand for back volumes of the Quarterly Cumulative Index Medicus required reprinting many volumes, the sale of which aggregated \$110,000.00 and is accountable for the large increase in income from this source.

Costs and expenses incident to the publication of periodicals amounted to \$3,575,734.71 in 1949, as compared with \$3,309,453.42 in 1948. Contributing importantly to this increase were wages and salaries, the full impact of substantial wage increases won by certain industry crafts in the middle of 1948 was felt in 1949, and a general upward adjustment in the wage structure continued throughout the year.

Additional comparisons of periodical publication expenses follow:

	1949	1948
Paper stock	\$633,720.50	\$580,791.28
Engravings and illustrations	93,126.71	97,423.94
Postage, all classes	219,043.90	209,218.62
Ink	28,837.06	29,631.62

Social Security taxes amounting to \$37,654.94 were paid in 1949, as compared with \$33,147.38 in 1948.

Costs and expenses totalled \$5,272,232.39. This amount includes expenditures by councils, bureaus and committees amounting to \$1,269,669.78. Similar expenditures in 1948 amounted to \$1,169,165.52. Ordinary income in 1949 exceeded costs and expenses by \$106,817.56, this amount was credited to the capital account of the Association, which now totals \$4,240,197.81.

The addition to the headquarters building was completed about the middle of the year, at a total cost of \$669,216.17.

Additions to investments in machinery and printing equipment amounted to \$51,534.08 and in office and laboratory equipment, \$71,972.29.

Marketable securities purchased at a cost of \$4,716,546.79 represent investments of the:

General Fund	\$ 715,949.69
National Education Campaign	525,597.10
Association Reserve Fund	350,000.00
Retirement Reserve Fund	675,000.00
Building Reserve Fund	450,000.00
Depreciation Reserve Fund	1,300,000.00
Equipment Modernization Reserve Fund	700,000.00

In addition, United States Government Securities purchased at a cost of \$1,491,209.38 are held in the American Medical Association Research Fund. There was also a cash balance of \$2,134.37 in this fund.

MEMBERSHIP DUES

The Board of Trustees has made the following decisions as to who shall pay the American Medical Association membership dues:

1. The county society shall determine when the payment of dues is a hardship, but in no case will the American Medical Association dues be remitted unless the county and state dues also are remitted.

A person in actual training for not more than five years after his graduation from medical school will be exempted, provided he is also exempted from state and county dues.

2. The dues of a physician who joins his county society after July 1 will be \$12.50, if he joins before July 1 his dues will be \$25 for that year.

3. A physician who transfers from one state or county to another will not be expected to pay the dues a second time, that is, he will not be expected to pay them in the state or county to which he has removed if he paid them in the state or county from which he moved.

RECOMMENDATION

The Board of Trustees recommends that the House of Delegates take action to set the amount of membership dues at the annual session, which should give each constituent association time for the preparation of statements to include their own and the American Medical Association dues. Approval of this recommendation would necessitate amendment of the By-Laws.

The Board of Trustees also recommends that the By-Laws be amended to give the Board specific authority with respect to the remission of membership dues, as indicated above and in certain other circumstances at its discretion.

REPORT OF COMMITTEE ON DISPLACED PHYSICIANS

This committee was appointed by the Board of Trustees in accordance with the following resolution which was adopted by the House of Delegates at the 1949 Annual Session:

Resolved That a Special Committee on Displaced Physicians be appointed by the President of the American Medical Association to carry out the members whose duty it shall be to study the problems of displaced physicians generally and as far as possible to cooperate with the International Refugee Organization and the various state authorities in furthering the resettlement of these individuals in a spirit of friendly cooperation with their unfortunate colleagues.

In dealing with these problems the committee is cognizant of the following facts:

Of the more than 2,600 displaced physicians in the occupied zones of Europe a number have already emigrated to this country and many more, it is anticipated, will come, although there are probably almost 2,000 remaining in Europe at the present time. Among these physicians there are some who escaped into Western Germany without any personal documents as to graduation from medical school or evidence of their status as practitioners in their own countries. For a large proportion of these individuals it is impossible to obtain certificates of graduation from their medical schools, which are located in areas under Russian control. The International Refugee Organization has carefully checked all credentials and other evidence of professional status of every one of these physicians and has certified all those found worthy of such certification for medical work among the displaced populations of which they formed a part. Medical and public health activities for the past four years have been carried on among these people under the direction of the International Refugee Organization and the health standards and statistics will bear comparison with those of any civilized nation. Among the displaced physicians there is about the proportion of specialists, teachers and other leaders of the profession as would be expected in the population of any civilized country. These physicians, like the other displaced persons, are homeless and penniless and cannot return to the countries from which they came because a return to areas under communist control to which they are known to be opposed would mean imprisonment or death.

With the above facts in mind, the committee makes the following recommendations: (1) that the American Medical Association suggest to the state medical examining boards and to the Federation of State Medical Boards of the United States that they give special study to the present unique situation with respect to displaced physicians with the idea of framing special regulations to meet it, (2) that the plan of accepting International Refugee Organization certification in lieu of other evidence of graduation and professional status when such evidence cannot be obtained be suggested to the state medical examining boards, (3) that efforts be made by the state medical board to arrange for the appointment of displaced physicians in state hospitals, as has been done in Iowa, and in such other hospitals as may be possible, to allow such physicians to become acquainted with American medical methods and practices, (4) that state medical boards be urged to consider the framing of special regulations designed to make it possible for specially qualified displaced physicians to be licensed for limited practice in communities and hospitals where their services are needed, (5) that the American Medical Association recommend to the appropriate departments of the Federal Government that steps be taken to allow the utilization of the services of displaced physicians certified by the International Refugee Organization in federal services such as the Indian and Alaskan services under the Department of the Interior where it is understood there is a great need for more physicians, and (6) that a copy of this report be sent to the secretary of each state medical examining board and to the secretary of the Federation of State Medical Boards of the United States.

Respectfully submitted,

J. J. MOORE, Chairman
ALEX. M. BURGESS
CREIGHTON BARKER
JACOB GOLUB
ERNEST B. HOWARD
GEORGE I. LILL

The above report was presented to the House of Delegates at the Washington Session in December and action on it was deferred until the next session of the House

REPORT OF COMMITTEE ON GENERAL PRACTICE

At its annual session in June 1949 the House of Delegates instructed the Board of Trustees of the American Medical Association to appoint a Committee on General Practice to continue the work of the former committee, which had been appointed in 1947. The Committee was appointed and has given careful consideration to the duties assigned to it as a continuation of the work of the former Committee. It has reviewed that Committee's report and has noted the progress made on the various recommendations of that Committee. The Committee submits the following report:

The Committee recognizes a change in the attitude toward and the emphasis on general practice in the past three years. The Committee feels that this is wholesome, that the prestige of the general practitioner has been improved, that medical students and interns are planning in increased numbers to engage in general practice, that more medical schools are aware of their responsibility for the training of adequate numbers of students for general practice and that the public is becoming increasingly aware of the need for the family and personal health counselor who will take care of the common ailments and who will call on the service of the specialist when this becomes necessary.

Many of these changes in attitude and prestige are due to social and economic factors over which we have no control such as the change from a wartime to a peacetime economy. It is also due in part to the constructive attitude of the House of Delegates and the councils of the American Medical Association and to the increased interest on the part of general practitioners in the problems of organized medicine and medical education. The latter has been concretely indicated by the establishment of an organization of general practitioners, the American Academy of General Practice, which has already attained a membership of approximately 12,000. There is still lack of adequate participation on the part of the general practitioners in the problems of organized medicine but the change that has taken place in the last three years is extremely encouraging, and the Committee calls attention to the fact that to its knowledge no major medical conference on a nationwide basis has been conducted this year without representation of general practitioners.

It is the opinion of the Committee that an insufficient number of general practitioners are being trained to fill the basic needs for adequate care for the American people and that there is still an overemphasis on the training of specialists. It is realized by leaders responsible for medical education and distribution of medical care that the best interests of the American people are served, economically and medically, when a balanced medical community is established with a foundation of 60 to 80 per cent of well trained general practitioners with highly trained specialists skilled in the narrower branches of medicine readily available. This has awakened interest in teachers and members of the profession in general practice and has encouraged a higher percentage of students to continue in general practice. It is agreed by the majority of educators and leaders in medicine that more emphasis on general practice should be made in the undergraduate years thus encouraging young men and women of high caliber to select this broadest field of medicine and surgery for their professional careers. Three methods of accomplishing this are suggested: (1) The inclusion of general practitioners as clinical instructors in the medical schools thus exposing the student to capable, conscientious well trained general practitioners early in their medical careers, (2) a series of lectures or panel discussions on the art of medical practice during the junior and senior years, and (3) preceptorships sponsored and controlled by state medical societies and medical schools under which students would be assigned to selected and approved general practitioners for a specified period of time during which they would live and work with the physician in the normal type of daily practice.

The Committee commends the Council on Medical Education and Hospitals for its work on the development of general

practice residencies and recommends that the Council make every effort to have these facilities expanded as rapidly as may be consonant with a high standard of training. It further recommends that the Council consider the utilization of the small general hospitals throughout the country. These hospitals would provide a fertile field for training in actual practice of medicine and surgery while allowing interns and residents to participate actively in the work of general practitioners throughout the nation.

In regard to minimum training after graduation from medical school, the Committee feels that at the present time the most satisfactory requirements for graduate training for general practitioners would be a one year rotating internship, followed by one year of general practice residency, and continuation of postgraduate study at frequent intervals throughout the professional career. This is based on the educational philosophy that medicine is a life long educational experience. It appears that a third year or more would be particularly suitable for the general practitioners who desire to become more proficient in one or another clinical field, such as surgery, obstetrics, pediatrics or psychiatry. It would be feasible in teaching and university hospitals to develop a three year residency program to give such continued advanced training. The Committee recognizes a great variety of needs of educational experience both because of the great divergence of the types of communities which must be served and in the interests and abilities of the physicians practicing. It therefore feels that a rigid, fixed program for the education of general practitioners would be detrimental to the best interests of our nation.

The Committee feels that services of interns are being dissipated in some hospitals, because too much of their time is devoted to nonclinical activities and work that is not directly connected with the practice of medicine. The Committee understands that the Council on Medical Education and Hospitals is aware of this problem and is doing its part to correct it. The Committee also believes that this matter should be called to the attention of the members of the profession who are responsible for the educational experience of interns in hospitals. It is hoped that they will assume a fuller responsibility for the education of these young physicians and supervise the use of their time more carefully, so that greater economy of time and effort may be attained.

It is the opinion of the Committee that a higher quality of specialist would be obtained if the candidate for any field of specialization were taken from the ranks of the general practitioner with several years' experience in practice. The Committee recognizes that there are other acceptable points of view. However, it is the opinion of the Committee that until a man has had the opportunity to experience the practice of medicine he is unable adequately to evaluate and select the special field in which he is most capable and most interested. Furthermore, the Committee feels that the experience in general practice fits a man to be a more capable specialist, and therefore the Committee recommends that the various specialty boards give reasonable credit to the time spent in training and experience in the years of general practice toward eligibility for board examination and certification when such certification is sought.

The Committee commends the House of Delegates of the American Medical Association for its stand regarding the integration of general practitioners into hospital staff organization. The Committee again emphasizes that the integration of well trained, competent and qualified general practitioners into the staffs of all general hospitals will contribute to the distribution of a high quality of medical service to the people of the community. At the 1949 annual session the House of Delegates adopted a report of its Reference Committee on Medical Education which stated that it was of the opinion that hospitals existed primarily for the better care of the sick and for the promotion of the health of the American people and that these ends can best be served by the existence of a large number of well trained thoroughly qualified general practitioners able to admit their patients to the hospitals in order to give them the best medical care available. The Committee concurs in this report and recommends a continuation of the integration of general practitioners into hospital staff. The Committee

believes that the members of the hospital staffs are the most qualified groups to decide who is qualified to practice medicine in the hospitals, whether as a staff member or as having courtesy privileges

It is apparent to the Committee that there is no single representative organization acting as evaluating and approving agent in the field of hospital standardization and inspection. The Committee feels that the House of Delegates of the American Medical Association and the representatives of other agencies engaged in hospital standardization and approval should explore the possibility of developing a single body or organization which would represent all doctors utilizing hospital facilities. The Committee believes that this feeling is general throughout the medical profession in this country and recommends that the House of Delegates institute the preliminary steps to accomplish this purpose as soon as it is feasible.

The Committee commends the general practitioners for their increased interest in organized medicine, local, state and national and encourages them to continue in all activities of organized medicine both scientific and organizational. It is the feeling of this Committee that a long range program, designed to correlate and assist in the solution of the various problems presented to general practitioners, may be met more effectively if this Committee on General Practice is continued.

Respectfully submitted,

STANLEY R. TRUMAN, Chairman
WILLIAM L. PRESSLY
JOSEPH B. COPELAND
PAUL A. DAVIS
GEORGE S. KLUMP

COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

The Board of Trustees has received resolutions and expressions of appreciation from the Council on National Emergency Medical Service, which are herewith presented as a part of the report of the Board to the House of Delegates.

RESOLUTION ON EFFECTIVE CIVIL DEFENSE PROGRAM

WHEREAS A civil defense program to be effective, must be planned and organized well in advance of the time that it is needed, and

WHEREAS The planning and organization of an adequate program of civil defense requires enabling legislation to provide for and allocate the necessary authority and to allow for intra and interstate mutual assistance agreements now therefore be it

Resolved That the American Medical Association does hereby go on record as urging the immediate passage of adequate Federal and state enabling legislation and the immediate establishment in those states that have not done so of a civil defense organization headed by a civil defense director to whom the necessary authority and responsibility are delegated

RESOLUTION ON APPOINTMENT OF MEDICAL ADVISORY COMMITTEE TO NATIONAL SECURITY COUNCIL

WHEREAS The decisions of the National Security Council will be critically affected by the magnitude complexity and seriousness of the medical and health problems that will confront the nation in the event of a future war now therefore be it

Resolved That the American Medical Association urges the appointment of a medical advisory committee to the National Security Council

EXPRESSIONS OF APPRECIATION

1 The American Medical Association, through its Council on National Emergency Medical Service, wishes to extend to the President of the United States its appreciation for his wisdom and foresight as shown in the appointment as Chairman of the National Security Resources Board of an Executive of the highest type who has amply demonstrated himself to be well qualified for this most important post. Furthermore, the American Medical Association, through its Council on National Emergency Medical Service, wishes to assure the Chairman of the National Security Resources Board of its appreciation for the fine spirit of leadership and cooperation that has been shown by the Director and members of the Health Resources Division of the National Security Resources Board and of the sincere desire of the American Medical Association to continue to cooperate with that body in its civil defense planning and to render any and all assistance to it and to the National Security Resources Board as a whole that may lie within its powers.

2 The American Medical Association, through its Council on National Emergency Medical Service, wishes to commend

the National Security Resources Board, the United States Atomic Energy Commission and the General Services Administration for the wisdom and foresight evidenced in the establishment of the nationwide courses or indoctrination in the medical and radiological aspects of atomic warfare and wishes to assure these agencies of its sincere desire to cooperate with and to assist them in their efforts to insure the success of this program, which may be expected to familiarize the medical and allied professions with these most vital of subjects.

3 The American Medical Association commends the Defense Secretary for the progress that has been made in the development of programs providing for the more effective and economic utilization of medical personnel and facilities in the Armed Forces.

REPORT ON RESOLUTION REFERRED AT WASHINGTON SESSION

The Resolution on Battle Assignment of Medical Reserve Officers, introduced by Dr. James P. Kerby, Utah, at the Washington Session, was referred to the Council on National Emergency Medical Service. The Council has considered the resolution and, having been assured that the problem is recognized by the Medical Department of the Armed Forces and is being considered in current planning, recommends that no further action be taken at this time.

STUDENT AMERICAN MEDICAL ASSOCIATION

The House of Delegates at the Washington Session in December directed the Board of Trustees to make necessary studies and develop appropriate plans, for presentation at the next session of the House, toward the formation of a Junior American Medical Association. This action of the House was in accordance with resolutions presented originally at the 1949 annual session and again in more specific form at the clinical session.

In compliance with this mandate the Board presents, for whatever action the House of Delegates may desire to take the following Proposal for the Establishment of a Student American Medical Association (or by whatever name called)

- 1 The organization should be limited to medical students.
- 2 County medical societies should be encouraged to offer a special membership to interns.
- 3 The basis of the organization should be local student societies formed at each medical school.
 - (a) Students should elect their own officers on the local level and run their own organization.
 - (b) Each local chapter should have an advisory committee as follows:
 - i A Faculty representative appointed by the local county medical society from a list of five or more names submitted by the local student society. All nominees must be members of the local county medical society.
 - ii A county medical society representative appointed by the local medical society, who shall not be a member of the faculty.
 - iii A state medical association representative appointed by the state medical association who shall not be a member of the faculty.
 - iv The dean of the school.
 Careful selection of the advisors in categories i, ii and iii is vital. The advisors must be respected by both the medical profession and students and should be familiar with the achievements and programs of organized medicine.
- 4 An "Executive Council" should be formed to administer the student organization. It should be constituted as follows:
 - (a) Ten students elected at the national convention of the student organization.
 - (b) Three representatives of the American Medical Association selected by the Board of Trustees.
 - (c) The Executive Secretary (to serve without vote).
- 5 An Executive Secretary, with offices at American Medical Association headquarters, should be appointed by the Board of Trustees. His function would be to coordinate the activities of the student organization on a national level and carry out the policies of the Executive Council.
- 6 The student organization should hold an annual convention composed of two duly elected student delegates from each medical school chapter for the purpose of transacting business.
- 7 The national convention of the student organization shall elect two representatives to the American Medical Association House of Delegates who shall have the privilege of the floor but no vote in that body.
- 8 After consideration of this plan by the House of Delegates in June, student representatives from those medical schools that have demonstrated interest in the formation of a student organization shall be invited to meet with representatives of the American Medical Association, designated by the Board of Trustees, to draw up a constitution and by laws and take whatever other action is indicated at the time.
- 9 When this "ad hoc" group has completed its function, a national convention of students should be called to establish formally the student organization.

10 The subcommittee considered the establishment of a publication for the Student American Medical Association but no final conclusion was reached. It was suggested that if a special publication is approved the editorial supervision should be under the direction of the Executive Secretary and the Editor of The Journal of the American Medical Association.

11 It will be the responsibility of the Board of Trustees to consider what expenses, if any, of the Student American Medical Association shall be borne by the American Medical Association.

SURVEY OF PHYSICIANS' INCOMES

The Board of Trustees has authorized the cooperation of the Bureau of Medical Economic Research with the Department of Commerce of the federal government in making a survey of physicians' incomes. Similar surveys of incomes of dentists and lawyers have been made jointly by the Department of Commerce with the American Dental Association and the American Bar Association.

The survey does not have any relation to the operations of the United States Bureau of Internal Revenue.

A questionnaire has been sent under government frank to 100,000 physicians. The results of this questionnaire will be made available to the Bureau of Medical Economic Research at Association headquarters.

SURVEYS OF MEDICAL EDUCATION AND MEDICAL PRACTICE IN GREAT BRITAIN

Since the meeting of the House of Delegates in Washington in December, two committees were sent to Europe to investigate the impact of new legislation on medical education and on the practice of medicine in the United Kingdom. The first committee, which was charged with investigating the effect of this type of legislation on medical education, consisted of Dr. Loren R. Chandler, dean of Stanford University School of Medicine; Dr. Stanley E. Dorst, dean of the University of Cincinnati College of Medicine; and Dr. Harold S. Diehl, dean of Medical Sciences at the University of Minnesota. The second committee, appointed to study medical care, was composed of Dr. Walter B. Martin, Norfolk, Va., a member of the Board of Trustees; Dr. Heyworth N. Sanford, Chicago, a pediatrician; Dr. Ulrich R. Bryner, Salt Lake City, a general practitioner; Dr. Grover C. Penberthy, Detroit, a surgeon; and Dr. Carl M. Peterson, Chicago, Secretary of the Council on Industrial Health.

The reports submitted by these two committees are exhaustive and will be published in THE JOURNAL either in full or in condensed form. Enough mimeographed copies will be available at San Francisco, so that each member of the House of Delegates may obtain one.

These are the first official reports to the American Medical Association on conditions in Great Britain. Many articles have been written by observers, and many persons going to England have brought back information, but these committees remained long enough to make very careful studies. Their reports are highly illuminating.

HEARINGS ON TAFT AND HILL BILLS

The House of Delegates at its June 1949 meeting in Atlantic City adopted Resolutions on the Hill Bill and Taft Bill and directed the Board of Trustees to hold hearings on the resolutions. At the first meeting of the Board following the June session of the House, this matter was discussed and the Board voted to report to the House of Delegates that any interested person may appear to present his views at any regular meeting of the Board of Trustees. This holds true not only for the Taft and Hill Bills but also for any matter that is important to the Association. The Board of Trustees is always ready to hear individuals or groups. The Board further felt that any members desirous of testifying regarding the Taft and Hill Bills should contact the Coordination Committee on Legislation, which was recently appointed by the Board.

RESOLUTION ON FREE CHOICE OF PHYSICIANS FOR FEDERAL EMPLOYEES

This resolution, adopted by the House of Delegates at the Annual Session in 1949, was referred to the Council on Industrial Health, which in turn referred it to its Committee on

Workmen's Compensation. That committee reports that the opinions expressed about the resolution indicate that there is some confusion as to objectives. The question is also raised as to the advisability of seeking an amendment to a federal law until more information is obtained about the effect of such amendment on medical practice in other states. In view of these circumstances, it is suggested that more study be given the matter based on further discussions with the authors of the original resolution.

COMMISSION ON CHRONIC ILLNESS

The Commission on Chronic Illness is now housed in the headquarters building of the American Medical Association. The Commission is an outgrowth of the Joint Committee on Chronic Diseases, a cooperative effort on the part of the American Medical Association, the American Hospital Association, the American Public Health Association and the American Public Welfare Association established late in 1946 to explore the problem of chronic illness. After publication of a widely used statement, "Planning For the Chronically Ill," the Joint Committee began planning the establishment of a long range commission, calling itself in the meantime the Interim Commission on Chronic Illness. The U. S. Public Health Service cooperated in the work of the Interim Commission, which transferred its responsibilities in May 1949 to the Commission on Chronic Illness. The Commission is composed of approximately thirty-five members representing the general public, industry, labor, agriculture, education, religion, the social sciences, journalism, health and welfare. The American Medical Association is providing office space and financial support for the Commission, which has received additional funds from some other voluntary agencies and foundations. Dr. Morton I. Levin, on leave of absence from his duties as assistant commissioner for medical services of the New York State Department of Health, is serving as Director.

The participation of the American Medical Association in this effort is a part of the implementation of the Ninth Point in the Association's Twelve Point Program, which advocates "Provision of Facilities for Care and Rehabilitation of the Aged and Those with Chronic Disease and Various Other Groups Not Covered by Existing Proposals."

EXPANSION OF WASHINGTON OFFICE

Since the December 1949 meeting of the House of Delegates, the Washington Office has been moved into much larger and better equipped quarters and the personnel also has been increased. At the present time, Dr. Joseph Lawrence, Director, is assisted by two physicians, one lawyer, one staff writer and one administrative assistant. The Washington Office now occupies an entire floor of a new office building at 1523 L Street, N. W.

The informational material now being prepared and distributed by the Washington Office includes the new "Capitol Clinic," providing additional information concerning the Washington scene that was not available in 1949.

COORDINATION COMMITTEE ON LEGISLATION

The House of Delegates at its meeting in Washington, D. C., in December 1949 adopted the following report of the Reference Committee on Legislation and Public Relations:

Since the Washington office is now under the direction of the Board of Trustees instead of as formerly under the Council on Medical Service in order to promote more effectively the activity of this office and implement its work, your reference committee recommends that the Board of Trustees appoint a committee of not less than seven members from the Trustees and general membership. The committee's function should be the facilitating of the activities on legislative matters and the dissemination and distribution of legislative information throughout the various states. Your committee furthermore recommends that the Board of Trustees give immediate consideration to proper financing of this committee to permit adequate functioning in this field.

In accordance with this action, the Board of Trustees has appointed the following Coordination Committee on Legislation

- Dwight H Murray Chairman Napa Calif
- Oscar B Hunter Vice Chairman Washington D C
- Joseph D McCarthy, Omaha
- F J L Blasingame Wharton Texas
- M J Dattelbaum Brooklyn, N Y
- Willis H Huron Iron Mountain Mich
- Deering G Smith Nashua, N H
- Julian P Price Florence, S C
- McKinnie L Phelps, Denver Colo

and ex officio

- Edwin S Hamilton, Kankakee, Ill
- Gunnar Gundersen, La Crosse, Wis
- Walter B Martin, Norfolk, Va

The Committee held its first meeting in Chicago, Jan 15, 1950, at which time it was pointed out that the principal functions of the Committee are (1) to streamline legislative action so as to get faster and more effective results in Washington, (2) to study and report on all legislation introduced, (3) to maintain knowledge of the current status of and take suitable action on all bills previously introduced, (4) to assure the dissemination of information to local and state medical societies with respect to current legislation and actions recommended, and (5) to recommend the names of physicians for the presentation of testimony to congressional committees

The Committee also met on February 8 and March 30 and carefully studied all legislation pending and proposed Between meetings contact has been maintained among the members by correspondence and, when necessary, by telephone To facilitate the dissemination of information to the states, the Chairman has allocated to each member a number of states in his territory for which he is responsible

The Committee has paid particular attention in its deliberations and activities to S 1453—federal aid to medical education, H R 6000—to extend and improve the Federal Old-Age and Survivors Insurance System, to amend the public assistance and child welfare provisions of the Social Security Act and for other purposes, S 1411—school health services act, and other fringe bills Continuing effort is being made against the passage of these bills or those portions of them that are considered dangerous to the public health

The Coordination Committee on Legislation has met jointly with the Executive Committee of the Board, the Director of the Washington Office and the Director of the Bureau of Legal Medicine and Legislation at each meeting Thus, a close integration of activities connected with legislation has been achieved

BULLETIN FOR WOMAN'S AUXILIARY

Some time ago consideration was given to the publication of a Bulletin for the Woman's Auxiliary to the American Medical Association, which would appear monthly and would contain advertising material This proposal has been carefully considered by the Board of Trustees, and it has been decided to cancel the project There were a number of reasons for this action, the principal one being that a number of the Auxiliary's members did not desire the publication

Respectfully submitted,

- LOUIS H BAUER, Chairman
- GUNNAR GUNDERSEN, Vice Chairman
- EDWIN S HAMILTON, Secretary
- JOHN H FITZGIBBON
- JAMES R MILLER
- WALTER B MARTIN
- DWIGHT H MURRAY
- EDWARD J MCCORMICK
- F J L BLASINGAME

ADDENDA TO REPORT OF BOARD OF TRUSTEES

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the Year Ended December 31, 1949

Investments (at cost) as at Jan. 1, 1949	\$4 675 950 14
Bonds purchased (at cost)	1 834 752 63
Less	\$6,508 702 77
Bonds called matured or sold	1 792 155 98
Investments as at Dec 31, 1949	\$4 716 546 11
Balance held for investment Jan 1, 1949	\$ 63 381 76
Interest received on investments in 1949	175 079 39
Transferred to General Fund	\$ 218 461 15
	185 403 57
Uninvested Funds at Dec 31, 1949	33 057 15
Invested and Uninvested Funds as at Dec 31, 1949	\$4,749 604 37

DAVIS MEMORIAL FUND

Balance in Fund Jan. 1, 1949	\$ 8 205 05
Interest earned on bank balance in 1949	102 88
Funds on Deposit at Dec 31, 1949	\$ 8 307 93

AMERICAN MEDICAL ASSOCIATION RESEARCH FUND

Investments (at cost) as at Jan 1 1949	\$1 484,637 50
Bonds purchased (at cost)	110 103 13
	\$1 594 740 63
Less	
Bonds sold	103 531 25
Investments as at Dec 31, 1949	\$1 491 209 38
Uninvested funds as at Jan 1, 1949	\$ 10,925 00
Add	
Gain from sale of securities	1,312 50
	\$ 12 237 50
Less	
Expended for purchase of securities	10 103 13
Uninvested funds as at Dec 31, 1949	2 134 37
Invested and Uninvested Funds as at Dec 31 1949	\$1 493 343 75
Interest received on investments and transferred to General Fund to apply on Research expenditures	\$ 35 350 00

JOSIAH J MOOKE, TREASURER

AUDITOR'S REPORT

March 2, 1950

To the Board of Trustees,
American Medical Association,
Chicago, Illinois

Dear Sirs

We have examined the balance sheet of the American Medical Association, as of Dec 31, 1949, and the related statement of income for the year then ended Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances

The cash in banks was confirmed by certificates from the depositories Cash on hand was counted or confirmed

The United States Government and other marketable securities were confirmed by an acknowledgment from the custodian

We communicated with debtors representing a substantial portion of the outstanding balances on accounts receivable, requesting that they confirm the amounts There were only minor exceptions reported and these were explained to our satisfaction The accounts receivable were reviewed as to age and collecta

bility, and it appears that the collection losses, if any, will be relatively immaterial

Materials, supplies, work in progress, and publications on hand are stated in accordance with physical inventories taken and valued by employees under the direction of the management, and certified by officials of the Association as to description, quantities, condition and valuation. We made tests of the physical existence of the quantities of certain items selected by us thereby satisfying ourselves that the recording of the quantities was carried out effectively. We tested the prices and computations and satisfied ourselves as to the general basis of valuation.

Expenditures charged to property and equipment accounts during the year in our opinion, were properly capitalized as representing additions or improvements. The provision for depreciation for the year appears to be reasonable.

All liabilities of which we obtained knowledge in the course of our examination received appropriate recognition.

In our opinion, the accompanying balance sheet and statement of income present fairly the financial position of the American Medical Association at December 31, 1949, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for proper conduct of the examination.

PEAT, MARWICK MITCHELL & CO

BALANCE SHEET

AS OF DECEMBER 31 1949
ASSETS

Cash in Banks and on Hand		\$ 262 599 59	
Accounts Receivable			
Advertising	\$ 213 034 85		
Reprints	10 798 46		
Directory Report Service—18th Edition	14 323 59		
Miscellaneous accounts receivable	14 649 79	252 806 69	
Interest Accrued on Investments		33 715 05	
Inventories of Materials, Supplies, Work in Progress and Publications—At cost		286 237 73	
Expenditures on Publications in Progress—Less income applicable thereto		375 753 07	
Prepaid Expenses, Deposits and Advances			
Advances to cover commitments of the National Education Program	150 548 35		
Other deposits and advances	19 521 92		
Insurance, etc.	22 761 79	192 832 06	
Marketable Securities—At cost (valuation based on market quotations \$4 755 492 00)			
United States Government securities	2 746 231 25		
Railroad, municipal, public utility and industrial bonds	1 970 315 54	4 716 546 79	
Representing investments of			
National Education Program	525 597 10		
General Fund	715 949 69		
Depreciation Reserve Fund	1 300 000 00		
Association Reserve Fund	350 000 00		
Retirement Reserve Fund	675 000 00		
Building Reserve Fund	450 000 00		
Equipment Modernization Reserve Fund	700 000 00		
American Medical Association Research Fund			
United States Government securities—at cost (valuation based on market quotations \$1 466 485 64)	1 491 209 38		
Cash in bank	2 134 37	1 493 343 75	
Property, Plant and Equipment—At cost			
Land		328 773 98	
Building	\$ 2 056 831 32		
Machinery and printing equipment	635 385 35		
Office and laboratory equipment	370 914 78		
	3 063 131 45		
Less—Reserve for depreciation	1 293 860 32	1 769 271 13	2 098 045 11
			<u>\$9 711 879 84</u>

LIABILITIES

Accounts Payable and Accrued Expenses

Cooperative Medical Advertising Bureau	\$ 42 366 69	
Miscellaneous accounts payable	143 474 68	
Taxes withheld from employees	28 016 59	
Accrued payroll	21 983 68	
Accrued taxes		
Social security	\$ 11 595 43	
Real estate and personal property	59 005 54	70 600 97
		<u>306 442 61</u>
National Education Program—Unexpended assessment collections reserved for future expenditures		676 145 45
Provision for Completion Costs of Publications not yet issued		130 000 00
Unexpired Subscriptions to Publications		643 414 76
Deferred Credits—Directory sales and report service and other credits applicable to subsequent period		47 335 46
American Medical Association Research Fund Reserve		1 493 343 75
Other Reserves		
Association	3 000 000	
Retirement	675 000 00	
Building	450 000 00	
Equipment modernization	700 000 00	2 175 000 00
Capital Account		
Balance at December 31 1948	4 133 380 25	
Excess of income over expenses for year ended December 31 1949	106 817 56	4 240 197 81
		<u>\$9 711 879 84</u>

STATEMENT OF INCOME

FOR THE YEAR ENDED DECEMBER 31 1949

Income		
Fellowship dues	\$ 73 560 00	
Income from investments	152 857 32	
Miscellaneous receipts and other income	34 460 47	
		<u>260 877 79</u>
Publications (Periodicals)		
Subscriptions	\$2 453 644 56	
Advertising	2 431 837 63	
	4 885 482 19	
Less—Cost and expenses	3,575 734 71	1 309 747 48
Books, pamphlets and reprints sold	232 689 97	
Less—Printing and other costs	186 274 02	46 415 95
National Education Program—Assessment collections	2 289 958 23	
Distributed as follows		
Expenditures	\$1 613 812 78	
Unexpended assessment collections reserved for future expenditures		
Advanced to cover commitments	150 548 35	
Invested in marketable securities	525 597 10	2 289 958 23
Total income		<u>1 617 041 22</u>
Expenses		
Councils, bureaus and committees	1 269 669 78	
Legal and investigating	18 316 32	
Employees group annuities and past service allowances	184 582 62	
Social security taxes	37 654 94	1 510 223 66
Income in Excess of Expenses		<u>\$ 106 817 56</u>

PUBLICATIONS (PERIODICALS) COSTS AND EXPENSES

FOR THE YEAR ENDED DECEMBER 31 1949

Wages and salaries	\$1 604 575 98
Paper stock	633 720 50
Contract printing—Labor and supplies	306 831 59
Engravings and illustrations	93 126 71
Ink	28 837 06
Magazine mailing supplies	4 073 32
Factory supplies	28 369 96
Repairs and renewals	5 916 64
Express and cartage	15 965 02
Power and light	12 238 07
Building maintenance expense	119 208 78

Fuel	10,551 40
Insurance and taxes	67 836 97
Editorial news and reporting	31 542 57
Postage	219 043 90
Subscriptions and advertising commissions	190,445 78
Discounts	35,987 35
Exchange	2 633 74
Subscription promotion expense	58,235 78
Office supplies	40 574 32
Telephone and telegrams	13,931 69
Office printing	64 838 27
Binding	1,130 75
Miscellaneous operating expense	33,755 39
Employees' group hospital and life insurance	25 483 38
Loss on sales of equipment	2,095 42
Loss on metal dress sales	1,031 91
Adjustment of provision for completion costs of publications not yet issued	† 67 469 46
	3,591,512 79

Depreciation (Based on estimated remaining life)	
Buildings	\$ 39,537 13
Machinery	25,598 20
Type and factory equipment	2,810 90
Furniture and equipment	14,380 08
	82,326 31
	3,673,839 10
Deduct—Proportion of overhead expense charged to other publications and departments	98,104 39
	\$3,575,734 71

Dagger (†) denotes red figures

NOTE—Total wages and salaries for year 1949 amounted to \$2 870 479 59. Of this amount \$1,604,575 98 is included above, \$799,600 96 is shown in schedule of Expenses of Councils, Bureaus, Association and Special Committees, and the remainder \$466,302 65 was disbursed in connection with the 18th Edition of the American Medical Directory now in preparation, and with the printing of books, reprints, pamphlets and printing in process at the close of the year

EXPENSES OF COUNCILS, BUREAUS AND COMMITTEES

FOR THE YEAR ENDED DECEMBER 31, 1949

Salaries and wages	\$ 799,600 96
Office printing and binding	58,107 70
Office supplies and repairs	27,277 70
Express, telephone and telegraph	14,758 11
Postage	17,307 95
Books and periodical subscriptions	3,477 32
Legislative services	5,655 66
Statistical data	16,519 75
Miscellaneous expenses	19,505 41
Educational material distributed	2,636 27
Staff, officers and special travel and trustees' meeting expenses	99,330 68
Radio broadcasting and electrical transcriptions	34,641 69
Inspection of hospitals and medical schools	27,325 80
Educational exhibits	588 19
Grants tests and investigations	14,905 30
Section secretaries' conference and honorariums	4,277 62
State secretaries' conference	11,540 37
Council and bureau conferences	71,912 69
Sundry committee expenses	40 300 61
Total	\$1 269,669 78

NOTE—The above expenses are allocated to the following Councils, Bureaus, and Committees

Association	\$ 183,117 52
Bureau of Health Education	116,781 01
Council on Pharmacy & Chemistry	134,079 87
A M A Laboratory	49,451 14
Council on Physical Medicine and Rehabilitation	38,763 26
Council on Foods & Nutrition	31,011 80
Committee on Therapeutic Research	8,852 13
Council on Medical Education and Hospitals	193,800 49
Bureau of Legal Medicine & Legislation	42,121 95
Bureau of Investigation	12,522 31
Bureau of Medical Economic Research	112,556 52
Council on Industrial Health	43,225 23
Bureau of Exhibits	33,043 49
Council on Medical Service	64,892 91
A M A Washington Office	87,523 21
Council on National Emergency Medical Service	9,448 20
Department of Press & Public Relations	85,708 58
Committee on Cosmetics	9,391 91
Committee on Rural Health	14,378 25
Total	\$1,269,669 78

Supplementary Report of Board of Trustees
Dr Louis H Bauer, Chairman then presented the following supplementary report

RESOLUTIONS ON NURSING PROFESSION

WHEREAS The American Medical Association recognizes with respect the enduring contribution of the nursing profession toward improvement and maintenance of the people's health and

WHEREAS The high level of health enjoyed by the American people results largely from the joint efforts of physicians and nurses practicing under the American Free Enterprise System, unhampered by political control and regimentation, and

WHEREAS, The resolution adopted by the House of Delegates of the American Nurses Association during the 1950 Biennial Convention, indicates clearly the desire of the nursing profession to improve and extend the Voluntary Health Insurance System and specifically urges the inclusion of adequate nursing service in Voluntary Health Insurance plans and

WHEREAS, The American Medical Association, together with other interested groups, is engaged in a determined drive to extend coverage and broaden benefits of voluntary plans as rapidly as sound actuarial experience permits, and

WHEREAS, The American Medical Association desires to cooperate to the fullest extent with the American Nurses Association therefore be it

Resolved That the Council on Medical Service be directed to study the feasibility of including payment for nursing services in Voluntary Health Insurance Plan Benefits and report its findings to the House of Delegates at its next session, and be it further

Resolved That in this study the Council on Medical Service request the cooperation of all groups qualified to advise on this subject including the American Nurses Association, and that the Secretary and General Manager be directed to transmit a copy of this resolution to the American Nurses Association

QUALITY OF MEDICAL CARE IN A NATIONAL HEALTH PROGRAM

The attention of the Board of Trustees has been called to the recommendations of the Subcommittee on Medical Care of the Committee on Administrative Practice of the American Public Health Association with respect to the quality of medical care in a National Health Program. These recommendations were published in the November 1949 issue of the *Journal of the American Public Health Association* and later reprinted and widely circulated by the Subcommittee. A critical analysis of this report by the Bureau of Medical Economic Research of the American Medical Association will appear in an early issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. The Board wishes to express its strong opposition to the socialist blueprint for medical care proposed in these recommendations and has directed the Secretary and General Manager to communicate with the American Public Health Association to ascertain whether or not these recommendations constitute the official policy of that association

RESOLUTIONS ON REORGANIZATION PLAN NO 27

WHEREAS The President of the United States has recently given the Congress a plan to reorganize certain branches of the Federal government known as Reorganization Plan 27, and

WHEREAS, This plan is in direct conflict with the recommendations of the Hoover Commission, and

WHEREAS It renders more difficult or impossible the creation of a department of health at any future time and

WHEREAS It ignores the fact that health, a direct concern of every one is entitled to equal governmental status with labor, commerce and similar activities which directly concern only a portion of the population yet have separate cabinet departments, and

WHEREAS, It does not promote economy, and

WHEREAS, It creates a triple holding company, a conglomerate department of health, education and security, most of whose work is not related and

WHEREAS, It will not be a reorganization of administration but a renaming of an agency admittedly faulty in set up, and

WHEREAS, It will open the way for an ambitious secretary entrusted with great power, to take over control of VA's medical department and

WHEREAS, It will make possible federal control of medical education through granting and withholding scholarship, etc., and

WHEREAS It will point toward eventual federal domination of our voluntary hospital system, and

WHEREAS, It will create a master organization ready and anxious to take over administration of a national compulsory health insurance program, and

WHEREAS It will place administration of the nation's health activities in the hands of a politically appointed secretary with no professional qualifications, and

WHEREAS, It will place the direct operation of medical programs in the hands of a Surgeon General who need not even be a doctor of medicine and

WHEREAS It will not in the slightest degree promise to improve the health and welfare of the American people therefore be it

Resolved That the American Medical Association go on record as opposed to Reorganization Plan 27 and in favor of Senate Resolution 302, and be it further

Resolved That a copy of these resolutions be mailed to all senators and congressmen as soon as possible, and be it further

Resolved That state medical societies and other organizations be urged to oppose this plan rigorously

The Speaker referred the Resolutions on Nursing Profession to the Reference Committee on Insurance and Medical Service, the Quality of Medical Care in a National Health Program to the Reference Committee on Reports of Board of Trustees and Secretary, and the Resolutions on Reorganization Plan No 27 to the Reference Committee on Legislation and Public Relations

Reports on Medical Education and Medical Practice in Great Britain

Dr Louis H Bauer, Chairman Board of Trustees, reported that two commissions had gone to Great Britain one to study the effect of the National Health Act on medical education and the other to study the National Health Act in operation Mimeographed reports of the commissions were distributed to the members of the House and Dr Walter B Martin, Trustee amplified the report of the commission to study the National Health Act in operation

Report of Reference Committee on Rules and Order of Business

Dr Jesse D Hamer, Chairman presented the following report and moved its adoption and the motion was seconded by Dr Allen H Bunce, Georgia, and carried

Mr Chairman and Members of the House of Delegates

The members of the Reference Committee on Rules and Order of Business held a short meeting this morning with a majority of the members present, and these are our recommendations to the House in view of the projected agenda that will be before it for consideration That this session of the House recess at 12 30 today and reconvene at 1 30, that the afternoon session attempt to complete its work as nearly as possible by 4 30 p m, that in addition to the regular order of business tomorrow afternoon, this House of Delegates reconvene at 5 00 p m and recess at 6 30 p m, in order to be present during the installation of the President, and that on Wednesday morning this House convene at 9 00 a m

Introduction of Dr Philip Wiles, Official Representative of British Medical Association

On request of the Speaker, Dr George F Lull, Secretary, presented to the House Dr Philip Wiles, London, who was officially representing the British Medical Association.

Progress Report of the Coordinating Committee

Dr Elmer L Henderson, Chairman of the Coordinating Committee, presented the following report which was referred to the Reference Committee on Legislation and Public Relations

Mr Speaker, Members of the House of Delegates

The National Education Campaign of the American Medical Association was organized just a year and a half ago and the Coordinating Committee, under instructions from this House of Delegates, was given the great responsibility of its general supervision

In the 18 months which have elapsed American medicine has conducted a continuing drive in behalf of Voluntary Health Insurance and against Compulsory Health Insurance The major results of the campaign are known to all of you—and to the vast majority of the American people Our report is simplified by the fact that this has been a public campaign publicly conducted—and that both its objectives and its accomplishments have been indelibly written in the public record

We doctors are proud of the work we have done, and there has been no attempt at concealment of either our objectives or the methods we have used to achieve those objectives

Out of medicine's campaign has come a great public crusade, not only to save freedom in medical practice, but to protect all the basic freedoms of the American people—and to stop the march of State Socialism in this country!

More than 10,000 national, state and local organizations, with many millions of members, have rallied to medicine's cause during the past year and a half—and have taken positive action against Compulsory Health Insurance, or any other form of socialized medicine. They have done so because we have succeeded in getting the plain facts in the case to them

We can be very proud of that broadening front, because medicine has won the support of the greatest cross-section of civic groups and public organizations ever amassed on a controversial issue in the history of this country And there is now a sharpened public awareness that medicine's battle for freedom affects not only doctors, but every American The most eloquent report of progress we can make is that the advocates of socialized medicine, who were arrogantly confident at the start of 1949, are now fearful to seek a roll call on this issue in the Congress!

That is significant progress, because it reflects the mounting public opinion against Compulsory Health Insurance. But it also presents a difficult problem, which calls for a change in strategy and concentrated campaign activity The doctors of America are ready for a vote on this issue, either in the Congress, or in the polling places of the nation! We are determined, furthermore, to bring this question to a definite decision! Tens of thousands of doctors all over America, who have carried medicine's cause to the people, often at great sacrifice in time and money, will continue to be heavily burdened until this issue is resolved

We cannot afford for that reason as well as others, to permit the delaying tactics of our opponents to turn this into a long-drawn war of attrition It has become imperative, if we are to avert an unending exhaustive fight for survival, that we find a way to make public sentiment on this issue unmistakably clear To achieve that clearcut decision, when there is little prospect that our opponents will risk a Congressional roll call the Board of Trustees and the Coordinating Committee has authorized Whitaker & Baxter, our campaign directors, to conduct a greatly intensified campaign during the balance of this year

This expanded program has one specific objective—to crystallize public opinion into a public mandate on this issue! We want an articulate public opinion, speaking with a voice that the socializers in Washington cannot defy or ignore. We are confident that if given an opportunity to speak on this issue, the people in every section of America would say "No"—and say it so emphatically that socialized medicine would become a dead issue, even in the offices of the Federal Security Agency We intend to give them that opportunity

The full power of American medicine's drive to a decision will be turned on early in October with a nationwide advertising campaign that will utilize three principal media—newspapers, radio and national magazines More than 11 000 daily and weekly newspapers—every bona fide paper in the nation—will carry medicine's message in a dramatic, powerful advertisement designed to give voice to the people's mandate on this issue To build advertising impact, approximately 300 radio stations will carry an intensive 'spot announcement' campaign, with hundreds of 30 second and one minute announcements being utilized to carry medicine's case to the radio audience During the same critical period when the campaign is being brought to a peak with newspaper and radio presentations, full-page A M A advertisements will appear in 30 of the leading national magazines

All members of the House already have received the first of a series of Informational Letters from Whitaker & Baxter giving details of this phase of the campaign and others will come to you during the weeks ahead. The Board of Trustees and the Coordinating Committee considered this program over a period of many months and deliberated many hours on all the facets of the plan, before it was approved We are confident it will help to solidify the confidence of the public in the

medical profession—and will serve to make the public's support of our position unmistakably clear in Washington

The positive benefits of the advertising program, in stimulating the growth of the Voluntary Health Insurance systems and in portraying American medicine's achievements, also will be very great. This advertising program is designed to reach every American—and we are confident that, not only the medical profession, but every field of endeavor, will benefit from this intensified campaign for American freedom. There are many aspects of the National Education Campaign with which you are thoroughly familiar and which require no report from this Committee. The campaign has gathered tremendous momentum this year, due, in part, to the sharply augmented drive directed by our National Campaign Headquarters, but also due, in large measure, to greatly increased activity on the part of crusading doctors all over the country.

The Voluntary Health Insurance systems are developing at a phenomenal pace, not only in terms of enrolment, but also in terms of improved coverage. As nearly as we can estimate from orders for campaign materials, more than 90,000 individual doctors now are actively and aggressively participating in medicine's campaign of public education.

In the six months which have intervened since our 1949 Campaign Report, submitted to the House of Delegates in December, more than 8,000 new organizations have taken their stand by medicine's side in the battle against socialization—and today we have 10,234 endorsing groups. This is due, largely to intensified work by state and county medical societies—and to the extensive program of field work initiated by the National Campaign Headquarters. Since this campaign was launched at the start of 1949, more than 77 million pamphlets, folders and leaflets, carrying medicine's message, have been distributed to the American people—and the demands for printed material have increased sharply this year.

All over the nation, too, doctors, exercising their rights as individual citizens, are campaigning actively for candidates whose convictions square with sound American principles—and are just as actively opposing those men in public life who have espoused the alien philosophy of socialization. American medicine's development as an aggressive powerful force in public affairs has given new courage and heart to other professions, businesses and industries which are threatened with socialization—and no one doubts today that the doctors are making their influence for better government felt throughout this nation.

Sometimes we should go outside our own group, even to those who often disagree with us, to get a realistic appraisal of our campaign activities—and in closing this report, your Committee would like to quote from two such sources. To the doctors who may wonder whether their individual work as citizens is effective the following paragraph from an editorial in a recent issue of the *United Mine Workers Journal*, commenting on the defeat of Senator Pepper in Florida, may prove reassuring:

"In 44 years of covering political campaigns in the nation and in many states, your editor has never witnessed such effective and productive quiet solicitation of votes as demonstrated by Florida doctors, druggists, dentists, hospital staffs, insurance companies and pharmaceutical representatives, aided and abetted by other professional men."

We believe you also should hear the final words of appraisal voiced by the *St. Louis Post-Dispatch*, in a recent article by its Washington correspondent entitled "Results of A. M. A. Political Drive." After a two-column, objective review of the A. M. A.'s National Education Campaign and the election activity of individual doctors, the *St. Louis Post-Dispatch* summed up as follows:

"The 140,000 members of the A. M. A. generally stand high in their own communities. They are well educated and have wide circles of friends, acquaintances and patients. Many take leading parts in community activities. They are in the large cities, towns and rural communities.

"Collectively and individually, they are now a political force to be reckoned with."

That your Committee believes from a critical source what has been opposed to our objectives leaves nothing further to be said. Our work is far from ended, the fight to a decision still lies ahead. But if we work, we can win that decision.

Respectfully submitted,

FLYNN L. HENDERSON, Chairman
ERNEST E. IRONS
LOUIS H. BAUER
EDWIN S. HAMILTON
GUNNAR GUNDERSEN
WALTER B. MARTIN
JAMES R. MILLER
R. L. SENSENICH
WILLIAM BATES
JOHN W. CLINE
R. B. ROBINS
GEORGE F. LULL

Report of Council on Medical Service

Dr. James R. McVay, Chairman, Council on Medical Service, presented the following report and supplementary report which were referred to the Reference Committee on Insurance and Medical Services:

To the Members of the House of Delegates of the American Medical Association

This is a midyear report of the work of the Council on Medical Service.

ACTIVITIES OF CORRELATING COMMITTEES

1. The Correlating Committee on Extension of Hospitals and Other Facilities, under the chairmanship of Dr. Elmer Hess, Erie, Pa., has devoted its efforts to a revision of the Report of the Committee on Hospitals and the Practice of Medicine submitted to the House of Delegates in June 1949 and returned for revision in December. In returning the report, the House of Delegates referred it to the "original committee or a reasonable facsimile thereof." In view of the fact that the Correlating Committee on Extension of Hospitals and Other Facilities is made up of the original committee members plus two additional physicians, it has been considered to be a "reasonable facsimile thereof."

The Correlating Committee has gathered material and suggestions from all interested sources and has given much time and thought to suggested revisions. The Committee met in Washington, D. C., on June 2 and 3 to work on the revision and to hear from interested persons. A special report of its findings and conclusions will be made to the House of Delegates in June.

2. The Correlating Committee on Indigent Care held its organizational meeting in Chicago on Feb. 4 and 5, 1950. Dr. H. B. Mulholland, Charlottesville, Va., was elected chairman. During the two-day session the Committee's discussion centered about the following matters:

- The relationship of the American Medical Association to the state and county medical societies in indigent medical care programs.
- The development of a study of various indigent medical care plans and possibly a critical analysis of some of the plans.
- Basic principles for medical care programs for the medically indigent and indigent, possibly to be submitted in resolution form to the Council for its approval and presentation to the House of Delegates at the midwinter Clinical Session.
- The development of minimal standards for indigent medical care plans.
- The preparation of material and brochures as guides for local medical societies and welfare groups.

- f Coordination with the American Public Health Association and the American Public Welfare Association

Questionnaires have been sent to all state medical associations and to 125 county medical societies, and much material has been collected from other sources. However, the Council will not give a full report of the Committee's activities until the meeting of the House of Delegates in Denver.

3 The Correlating Committee on Maternal and Child Care held its organizational meeting on June 4 in Chicago and will take up its work during the summer months.

4 The Correlating Committee on Medical Care for Industrial Workers has met twice—in Chicago on Nov 4, 1949, and in New York on Feb 18 and 19, 1950. Dr William A Sawyer, Rochester, New York, was elected chairman. The Committee has set forth the following projects for its study and consideration:

- a A review of the scope of the medical care programs (non-occupational) now available to industrial workers. This would include quality, costs, benefits, sponsorship and control as well as what the profession is doing in this field and the role played by the specialty groups such as the industrial surgeons.
- b A definition to distinguish between industrial workers and other workers. For instance, should the term "industrial workers" include all gainfully employed workers, all occupational groups, or should it be considered in its limited sense?
- c A review and evaluation of the status of physicians in medical care programs for industrial workers including the remunerative aspects as well as those having to do with administration.
- d A review of the trends in medical care for industrial workers from the point of view of schools of public health, from the point of view of its effect on the demands for compulsory sickness insurance and from the point of view of changes in union policy.

In addition, the Committee has given much consideration to the development of a suggested policy on temporary cash sickness benefits legislation. It is quite possible that these suggestions will be completed by June, and, if so, they will be included in a supplementary report to the House of Delegates.

5 The Correlating Committee on Medical Care of Veterans plans to hold its organizational meeting in San Francisco on June 24. The Committee has delayed its activities so that there might be no conflict with the Special Committee on Veterans Affairs, authorized by the House of Delegates in December 1949. This special committee is to make definite recommendations to the House of Delegates in June regarding the medical and hospital care of veterans with non service connected disabilities. Following the June session, the Council's Correlating Committee will take up its work in the field of veterans medical care.

6 The Correlating Committee on Prepayment Hospital and Medical Service met in Chicago on April 23 and on June 3, 1950. Dr A W Adson, Rochester, Minn, was elected chairman. The Committee plans to submit a report to the Council before the June meeting and, if this is completed it will be included in a supplementary report.

7 The Correlating Committee on Relations with Lay Sponsored Voluntary Health Plans met in Washington D C in December 1949, and in Chicago on June 2. Dr L W Larson Bismarck, N D, was elected chairman. The Committee is working on the development of suitable annotations to the Twenty Principles adopted by the House of Delegates in June 1949. If these are completed before the San Francisco Session they will be included in a supplementary report to the House of Delegates.

VOLUNTARY HEALTH INSURANCE

Regional Conferences—With the approval of the Board of Trustees, the Council sponsored four Regional Conferences on Voluntary Health Insurance: the Southern, Southeastern, Rocky Mountain and North Central. The meeting places, dates, and states invited were as follows:

SOUTHERN—FORT WORTH, TEXAS, MAY 6	
Arkansas	Mississippi
Kansas	Oklahoma
Louisiana	Texas
SOUTHEASTERN—RALEIGH, NORTH CAROLINA, MAY 13	
Alabama	North Carolina
Florida	South Carolina
Georgia	Tennessee
Kentucky	Virginia
ROCKY MOUNTAIN—SALT LAKE CITY, UTAH, MAY 20	
Arizona	Oregon
Idaho	Utah
Nevada	Wyoming
New Mexico	
NORTH CENTRAL—SIOUX FALLS, SOUTH DAKOTA, MAY 27	
Iowa	North Dakota
Minnesota	South Dakota

General Conference on Voluntary Health Insurance—Immediately after the Regional Conferences, the Council will conduct a general conference to explore methods of furthering the effectiveness of voluntary health insurance. This conference is scheduled to be held in Chicago, Sunday, June 4, and will be attended by the Council, the Council's Correlating Committee on Prepayment Hospital and Medical Service, representatives of the Health Insurance Council of the American Hospital Association, Council on Prepayment Plans and Hospital Reimbursement of the Blue Shield Commission and of the Blue Cross Commission.

Further reference to the Regional Conferences and the General Conference will be made in the Council's Supplementary Report.

OTHER ACTIVITIES AND PROJECTS

Health Councils—Since the Council began to stress community leadership some two years ago, the health council movement has spread into almost every state. As of May 1 over 530 community health councils were listed in the Council's files, a big increase from the 82 councils reported two years ago. Forty-five state health councils in 31 states and the District of Columbia have also been reported as compared to twenty reported in 1948. The difference in figures, of course, arises from the fact that several states have two types of state councils—an interprofessional council and a lay-professional council.

To obtain a comprehensive picture of every aspect of health council activity, the Council on Medical Service has cooperated with the National Health Council in a nationwide survey. The results of this survey should be ready by late Fall. In the meantime the Council continues to supply material on this subject to medical societies and interested lay groups. However, some disagreement exists as to the part the medical profession should play in health council activity, the relationship that should exist between local and state health councils and a number of other important problems. To approach these problems directly the Council plans to sponsor, in conjunction with the Michigan State Medical Society, a national conference on health councils early in the Fall. From this exchange of ideas it is hoped to arrive at a sound and united policy for medical society participation in the health council movement.

Physicians Placement Service—The Council is carrying out the three recommendations made by the Reference Committee on Insurance and Medical Service, approved by the House of Delegates in December: that the Council on Medical Service study the results of community cooperation in sections where it has proved successful, that the Council study ways and means of cooperating with state and county medical societies in obtaining community cooperation and that an effort be made to secure the cooperation of the various medical schools in providing postgraduate facilities for physicians practicing in these or similar communities.

Action on the first two recommendations is well under way and will be reported on in detail in the Council's annual report. Possibilities for carrying out the third recommendation are being investigated and will be reported on as soon as plans can be developed.

Requests for Material—Requests for information on voluntary health insurance, socialized medicine, and other related matters continue to be received at about the same rate as last year. During the first four months of 1950 over 60,000 items were distributed to physicians, speakers' bureaus, debate students, individuals participating in essay contests and others. Most of these items were sent in response to individual requests. Requests for large quantities were forwarded to the National Education Campaign headquarters.

Grievance Committees—Since the action taken by the House of Delegates in December, the subject of grievance committees has received much attention on the part of medical societies. The Council now has information on 12 state medical associations which have committees that perform this function, and a number of local societies have established similar methods and mechanisms for handling grievances. An inventory is being taken in this field, and questionnaires have been sent to both state and local medical societies. The Public Relations Department is cooperating with the Council in this project and will assist in preparing a pamphlet describing the various approaches to the grievance committee problem.

Industrial Health Plans—In February letters were sent to 176 business organizations requesting information on temporary disability coverage, medical, surgical and hospital coverage and other health benefits not connected with Workmen's Compensation. The list of those contacted includes industries, utilities, manufacturers and railroads, as well as financial, processing, mercantile and other types of organizations. Of the 131 replies received, 111 supplied information which is being tabulated for the use of the Correlating Committee on Medical Care for Industrial Workers in its studies.

Emergency Call Plans—The Council has continued to follow the development of emergency call plans. An ever-increasing number of local medical societies have set up programs for both night and emergency calls. In several communities the pharmacists are cooperating in these efforts by establishing similar programs among the members of their organizations. Many local societies are doing an outstanding job of advertising these services to the public. The Council now has available loan kits of information on organizing, operating and publicizing emergency call plans.

Medical Society Bulletins—The Council office receives 111 county and city medical society bulletins. Of these, 96 are monthly publications, six are bimonthly, six are weekly and three are quarterly. These bulletins provide much information on the activities of the county medical societies and are invaluable in maintaining up-to-date files. On the other hand, the county society bulletins receive little or no credit for the excellent service they render to the medical profession. In view of this, the Council is preparing a format for a nationwide appraisal program for the purpose of granting general recognition to all bulletin publications and special recognition to those adjudged best. With the approval of the House of Delegates a format for such a program will be submitted at the Clinical Session in December.

Roster of Executive Secretaries—The Roster of Executive Secretaries of State Medical Associations and County Medical Societies and Editors of County Medical Society Bulletins continues to receive much favorable comment from the persons working in this field. The Council has published the roster semi-annually for the past two years with the latest revision being made in March 1950. The increase in the size of the roster each time it is reprinted reflects the growth in the number of lay executives in the field of medical organization and in the number of bulletins being published. The latest edition contains 129 executives of state and county medical societies. At the

suggestion of several medical society executives the Council plans to compile and publish a separate list of other lay executives including field secretaries, directors of public relations and other key personnel in medical association offices.

MISCELLANEOUS ACTIVITIES

In June 1948 the Council conducted a survey of the activities of a selected group of county medical societies. Such a survey will again be conducted this summer. The purpose of this study will be to learn how many of the medical societies sponsor or participate in a given list of activities. Activities included in this list will be: Regular scientific meetings, regular post graduate programs, library facilities for members, publication of bulletins or news letters, public relations programs, speakers' bureaus, malpractice insurance programs, collection agencies, emergency call plans, grievance committees, health councils, interprofessional relations councils, indigent care programs, industrial health programs, chronic illness programs, blood bank programs, rheumatic fever control programs, cancer detection programs, diabetes detection programs, and tuberculosis case finding programs.

The main sources for information and material on all of these projects include questionnaires, correspondence and the medical society bulletins. Unfortunately, many activities do not come to the attention of the Council. The Council on Medical Service therefore recommends to the House of Delegates that it urge the state and local medical societies to keep the Council informed on their participation in or embarkment on any new activities in the field of medical service, and that it further encourage the component and constituent societies to complete and return the questionnaires which are directed to them for information. The Council sincerely appreciates receiving any material which these societies send to its office and hopes that more will keep the Council informed of their projects and activities.

Respectfully submitted,

JAMES R. McVAY, Chairman
ELMER HESS, Vice Chairman
JESSE D. HAMER
J. D. MCCARTHY
THOMAS A. MCGOLDRICK
H. B. MULHOLLAND
ERNEST E. IRONS
R. L. SENSENICH
WALTER B. MARTIN
GEORGE F. LULL
MR. THOMAS A. HENDRICKS,
Secretary

SUPPLEMENTARY REPORT OF COUNCIL ON MEDICAL SERVICE To the Members of the House of Delegates of the American Medical Association

The Council on Medical Service, in its report to the House of Delegates gave a resume of some of the activities and projects being carried on during 1950. Since this was but a midyear progress report, the resume was necessarily brief. A full account of the Council's work will be presented in its Annual report at the Clinical Session. At this time, however, the Council would like to supplement its remarks concerning the Regional Conferences and the General Conference on Voluntary Health Insurance.

Regional Conferences At the suggestion of the Council on Medical Service and with the approval of the Board of Trustees, four regional conferences on Voluntary Health Insurance were held: Fort Worth, Texas, on May 6, Raleigh, North Carolina, on May 13, Salt Lake City, Utah, on May 20, and Sioux Falls, South Dakota, on May 27. The chairmen of the various conferences as listed above were Drs. James R. McVay, Henry B. Mulholland, J. D. Hamer and J. D. McCarthy.

In each instance, the invitations were extended directly to the presidents and secretaries of constituent state medical associations asking them to attend and requesting them to designate additional representation from the state associations, medical

society prepayment medical care plans (including Blue Shield), the Blue Cross hospital plans, or from any other groups the state associations wished to have present. The Health Insurance Council was asked to designate representatives of private insurance carriers available in each of the areas. The Blue Shield Commission and Blue Cross Commission staffs were also invited to participate but declined the invitation.

Since these conferences were for the purpose of discussing ways and means of increasing enrolment in voluntary health insurance, only those states in which the enrolment was below the national average were invited. Of the twenty-five states receiving invitations, all but one sent representatives. Probably the outstanding achievement of the regional conferences is that they appear to be the first instance in which all groups interested in voluntary health insurance met for the purposes of exchanging ideas, discussing problems and in general furthering the effectiveness of all voluntary efforts.

While these conferences were exploratory in nature some of the definite points developed were

- (a) a need for further cooperation in solving problems common to all
- (b) necessity for continued and constructive competition among the various health insurance agencies
- (c) most problems can best be solved at the local level provided all agencies meet and discuss their mutual problems
- (d) a request that the American Medical Association develop a guide whereby constituent associations and component societies can recognize and cooperate with all duly qualified insurers in the field of voluntary health insurance
- (e) The necessity for continuing these regional conferences with all states included under the sponsorship of the Council on Medical Service

General Conference on Voluntary Health Insurance In compliance with the request of the House of Delegates and as a sequel to the four Regional conferences a general conference was sponsored by the Council and its Correlating Committee on Prepayment Hospital and Medical Service on June 4, 1950 in Chicago. Organizations represented were

American Medical Association
Blue Cross Commission
Blue Shield Commission
Canadian Life Insurance Officers Association
Council on Prepayment Plans and Hospital Reimbursement of the American Hospital Association
Health Information Foundation
Health Insurance Council
Whitaker & Baxter

This general conference developed on a national level most of the same points covered by the Regional conferences. It is most encouraging to report that a number of insurers following the lead of California Physicians' Service are experimenting in the field of chronic disease coverage. The Council will keep the House of Delegates informed as these experiments develop and as experience is gained.

It is the recommendation of the Council that these general conferences should be continued to develop more effective liaison and at the same time encourage regional and local conferences along the same lines.

Statement on Voluntary Health Insurance The function of the Correlating Committee on Prepayment Hospital and Medical Service is that of an advisory committee to the Council on Medical Service on problems of voluntary prepayment hospital and medical care. This Committee is composed of Drs. A. W. Adson, Chairman, E. Vincent Askey, Percy E. Hopkins, J. D. McCarthy, James R. McVay, H. E. Nichols, Carl Vohs, and Carlton E. Wertz.

The Committee has submitted the following statement which has been approved by the Council and is now presented to the House of Delegates.

The medical profession has always endeavored to render the highest quality of medical care at all times. It recognizes economic trends, including 'installment buying' and acknowledges the advantages of budgetary arrangements for medical and hospital care. A re-education of the public is necessary to inform it that medical and hospital care benefits are among the necessities of life to be included with food, clothing and shelter and that they are not a luxury to be provided by the federal government.

Since the practice of medicine is a human service, the ideal arrangement is that in which the patient has a free choice of his physician.

There are many prepayment plans in operation. It is obvious that suggestions can be made to further the efficiency of these plans to meet the medical and hospital benefit needs of the American public.

It is likewise obvious that voluntary prepayment medical and hospital care benefits should be made more generally available to individuals to families and to small groups as well as to larger employed groups in the various industries.

The Council through its Correlating Committee on Prepayment Hospital and Medical Service will attempt to evaluate the problems of medical and hospital care benefits and offer suggestions concerning the type of medical and hospital contracts that are needed by individuals and various groups and will make these suggestions available to organizations and insurance companies supplying prepayment medical and hospital care benefits.

Many agencies are required to extend voluntary prepayment medical and hospital benefit insurance. Blue Shield, Blue Cross and commercial insurance companies should establish liaison arrangements in furthering the enrolment of new members.

Many overlapping contracts for medical and hospital care benefits have given rise to misunderstandings. The hospital contract should include only those services that pertain to the patient's hospital care. Hospital benefits should not include those services usually or properly rendered by a doctor of medicine.

The present trend in labor negotiations is to include medical and hospital care benefits, therefore it is important that standards of good medical and hospital care should be recognized and maintained and not be subject to curtailment by bargaining on the sole basis of the monetary cost involved.

The medical profession should serve as advisors to all groups offering prepayment medical and hospital care benefits inasmuch as the medical profession is best able to determine what are adequate plans for the care of the sick.

The insured should participate in the cost of medical and hospital protection since this preserves initiative and minimizes abuse of the service.

Specific suggestions will follow as surveys and investigations are made of the various medical and hospital prepayment benefit plans.

Lay-Sponsored Voluntary Health Plans The House of Delegates, at its last session, authorized the Council's Correlating Committee on Relations with Lay-Sponsored Voluntary Health Plans to develop suggested annotations to the Twenty Principles to be used as guides by constituent associations and component societies as an aid in evaluating such plans.

The Correlating Committee has spent much time and has given careful thought to the annotation of the Twenty Principles. The Committee has presented suggested annotations to the Council and these suggestions have been considered. While the Council is of the opinion that much is to be said for these annotations the Council believes that because of the complexity of the question and in the interest of accuracy and clarity this entire subject should be studied further. We therefore wish to report that definite progress has been made in developing a set of annotations to the Twenty Principles for Lay Sponsored Voluntary Health Plans and that a complete report on this subject will be submitted to the House of Delegates at a later date.

1950 Prepayment Booklet The 1950 edition of the Council's Voluntary Prepayment Medical Care Plan booklet is just off the press and copies will be available for each member of the House of Delegates. Attention is invited to the Voluntary Health Insurance exhibit in the Scientific Exhibit section at the Auditorium booth Number 602 where it can be seen just how one state compares with another state in voluntary health insurance enrolment.

Temporary Cash Sickness Benefits Legislation In the Council Report reference is made to a study of temporary cash sickness benefits legislation by the Council's Correlating Committee on Medical Care for Industrial Workers.

The members of this Correlating Committee are Drs William A Sawyer, Chairman, Warren F Draper, John M Emmett, Thomas A McGoldrick, Leo Price, Frederick Slobe, and Harold A Vonachen. This Committee has now reported its recommendations to the Council. After consideration of these recommendations, it is the opinion of the Council that before reporting further on the matter of temporary cash sickness benefits legislation, this subject should be discussed with the state medical associations. In view of this, and with the permission of the House of Delegates, the Council will invite representatives of the state associations to participate in a conference on this subject at the earliest possible date and submit a complete statement to the House of Delegates at its next session.

Respectfully submitted

JAMES R McVAY, Chairman
ELMER HESS, Vice Chairman
JESSE D HAMER
J D MCCARTHY
THOMAS A MCGOLDRICK
H B MULHOLLAND
ERNEST E IRONS
R L SENSENICH
WALTER B MARTIN
GEORGE F LUIE
MR THOMAS A HENDRICKS, Secretary

Report of Council on Medical Education and Hospitals

Dr Harvey B Stone as Acting Chairman, presented the following report and supplementary report of the Council on Medical Education and Hospitals, which were referred to the Reference Committee on Medical Education.

To the Members of the House of Delegates of the American Medical Association

ASSOCIATION OF INTERNS AND MEDICAL STUDENTS

At the June 1948 meeting the House of Delegates adopted a resolution instructing the Council on Medical Education and Hospitals to investigate the Association of Internes and Medical Students and the International Union of Students as to facts, tendencies, affiliations and objectives and to make a report of its findings to the House of Delegates. In fulfillment of these instructions, the Council submits the following report.

The Council wishes to remind the members of the House of Delegates and others who may read this report that it possesses neither the authority nor the resources that are invested in a governmental agency empowered to conduct official investigations. It must be recognized, therefore, that in carrying out the instructions of the House of Delegates the only procedure open to the Council was to compile such information as might be generally available concerning this organization. It must be further recognized that in an unofficial investigation of this type the extent to which facts can be established and hence the extent to which judgments, either favorable or unfavorable, can be formulated is definitely limited.

This report is based on information obtained from the deans of the medical schools, from individual physicians and medical students, from the officers of the Association of Internes and Medical Students, from the publications of that organization, from the publications of the United States House of Representatives Committee on Un-American Activities and from other publications carrying information about this organization that have come to the attention of the Council. A reply to the Council's findings prepared by the National Executive Committee of the Association of Internes and Medical Students is presented as an addendum to the Council's report.

The Association of Internes and Medical Students was formed in 1941 as a merger of the Association of Medical Students, organized in 1937, and the Interne Council of Greater New York, organized in 1934. The *Interne*, which is published monthly, is its official publication.

The association states its objectives to be as follows:

- 1 Increasing the educational opportunities for medical students and young physicians
- 2 Representation of the students in the solution of the many problems existent in the field of medical education
- 3 Preparation of its members for their responsibilities in the medical profession

Membership is open to any medical student, intern or resident in the United States. Ten or more members in one institution may constitute a chapter. Persons in schools or hospitals which have no chapters may join as members at large. In November 1949, the association reported that it had approximately 2000 members and that there were chapters at 18 medical schools and 13 hospitals.

The individual chapters are autonomous. The national policy of the association is determined by the annual convention at which each chapter is represented by delegates in proportion to its membership. There are no salaried or permanent officers. The national convention elects a National Executive Committee to carry out its decisions. This committee consists of the national officers, the regional chairmen and the chairmen of the national committees. In 1948 the association listed the following national committees, each of which is located at an individual chapter:

- | | |
|-----------------------------------|--|
| 1 Medical Education | 5 Discrimination |
| 2 Medical Student Welfare | 6 Academic Freedom and |
| 3 Intern Welfare and Education | Vivisection |
| 4 Medical Economics and Sociology | 7 Cooperation with Other Student Organizations |

The association lists among the major accomplishments of its national committees:

- 1 Establishment of student faculty committees which have increased the effectiveness of the medical curriculums
- 2 Surveys on the status of medical education in various areas of the country
- 3 The adoption by the association of minimum standards for student food, housing and health services based on surveys of existing conditions
- 4 Contributed to efforts which led to Federal Security Agency's granting loans to medical students in 1941
- 5 Support for the development of a National Science Foundation
- 6 Support for legislation to increase subsistence benefits under G I Bill
- 7 Advocated fully autonomous student governments in medical schools
- 8 Endorsement of the Student Bill of Rights adopted by the National Student Association
- 9 Conducted a study on internships with the support of the Commonwealth Fund
- 10 Successful action to improve quality of food provided interns in several hospitals
- 11 Established a scale of minimum annual salaries of \$1,200 for interns, \$1,500 for assistant residents and \$2,000 for residents
- 12 Establishment of a speakers bureau and issuance of publication on the status of medical care in the United States and the various legislative measures proposed to improve medical care
- 13 Arranging lectures, symposia and surveys in opposition to the practice of discrimination in selection of student house staff members and the dispensation of medical care
- 14 Active support of the bill introduced in New York State legislature to remove tax exemption from any institution found guilty of discriminatory practices
- 15 Cooperation with the National Society for Medical Research in combating antivivisection
- 16 The association at its 1948 convention endorsed the principle of compulsory health insurance

The association has been active in international affairs, particularly in promoting student exchanges and in providing medical relief. Between 1946 and 1948, the association's Relief Committee sent "many tons" of medical books, journals and supplies to China and Europe. Its Exchange Committee has arranged low cost comprehensive opportunities for American medical students to tour Europe and to participate in world student activities, including attendance at the International Physiological Congress in England in 1947 and attendance at the International Clinical Congress in England in 1948.

The association participated in the establishment of the International Union of Students in 1946 and became an affiliate of this organization. With respect to its affiliation with this organization, the Association of Internes and Medical Students has stated:

It is true that there are student organizations from countries with Communist governments in the International Union of Students. But to infer that this imputes Communist affiliations' or tendencies would be just as foolish as to impute similar motives to the American Medical Association which as a member of the World Medical Association (and indirectly in the World Health Organization) is also affiliated with organizations from countries with Communist governments. As the resolution passed at the 1948 Convention of the Association of Internes and Medical Students reaffirming our affiliation with the International Union of Students states: 'Although the Association of Internes and Medical Students does not agree with every action taken by the International Union of Students our point of view is presented, considered and incorporated into the results in accordance with democratic procedure. Although the scope of the International Union of Students is broader than ours there exists a large area of common interest between the organizations. Although some student movements do not participate in the International Union of Students it is nevertheless the outstanding and most representative world student body.'

On Dec. 18, 1948, the Committee on Un-American Activities of the United States House of Representatives prepared and released a publication entitled "Citations by Official Government Agencies of Organizations and Publications Found to be Communist or Communist Fronts." This publication contains the following citations of the International Union of Students:

- '1 The World Federation of Democratic Youth brought into being the International Union of Students, which held a meeting in Prague on August 17-31, 1946. The administration and direction of this project was entrusted to a 17-man executive committee of whom 12 were known Communists' (Congressional Committee on Un-American Activities, Report No. 271, April 17, 1947, page 13)
- 2 The above (the International Union of Students) which held a meeting in Prague on August 17-31, 1946, sprang out of the World Federation of Democratic Youth, which is 'part of the Communist International solar system' (California Committee on Un-American Activities Report, 1948, page 187)

In the same publication the Committee on Un-American Activities reported the following citations of the World Federation of Democratic Youth:

- '1 The AYD (American Youth for Democracy) is affiliated with the World Federation of Democratic Youth which was founded in London in November 1945 by delegates from over 50 nations * * * From the outset the World Federation of Democratic Youth demonstrated that it was far more interested in serving as a pressure group in behalf of Soviet foreign policy than it was in the specific problems of international youth * * * So strong was the Communist domination at the London conference that it aroused the deepest concern of the English bishops' (Congressional Committee on Un-American Activities, Report No. 271, April 17, 1947, pages 12 and 13)
- 2 Cited as a 'part of the Communist International solar system which was founded in London November 1945 by delegates from more than 50 nations. With it is affiliated the American Youth for Democracy' (California Committee on Un-American Activities, Report 1948, page 187)

It is understood from newspaper reports that at its national convention in December 1949 the Association of Internes and Medical Students voted to disaffiliate from the International Union of Students, although voting at the same time to cooperate with that organization in arranging exchange of students.

In an article entitled "American Students and the I U S" that appeared in the July-August 1948 issue of the *Interne*, the Association's vice president for international cooperation made the following statement:

"Since most of America's students unlike the medical students are not aware of the benefits to be derived from the I U S the Association of Internes and Medical Students, which has derived so much from its cooperation and affiliation has taken the initiative in recently joining the Committee for International Student Cooperation. The Committee, members of which are leaders in the Association of Internes and Medical Students, National Intercollegiate Christian Council, National Students Association, Students for Wallace, American Youth for Democracy and other organizations has as its first tasks: 1 To provide American students with factual information about the I U S, 2 To establish means by which American students could avail themselves of the many travel facilities arranged by the I U S, 3 To broaden American student participation in the I U S."

In the publication of the House Committee on Un-American Activities referred to above, the following citations appear concerning American Youth for Democracy:

- 1 Cited as subversive and Communist. (Attorney General Tom Clark letters to Loyalty Review Board released Dec. 4, 1947 and Sept. 21, 1948)
- '2 Cited as the new name under which the Young Communist League operates and which also largely absorbed the American Youth Congress (Special Committee on Un-American Activities Report, March 29, 1944, page 102)
- 3 Cited as a front formed in October 1943 to succeed the Young Communist League and for the purpose of exploiting to the advantage of a foreign power the idealism, inexperience and craving to join which is characteristic of American college youth. Its high-sounding slogans cover 'a determined effort to disaffect our youth and to turn them against religion, the American home, against the college authorities and against the American Government itself' (Congressional Committee on Un-American Activities, Report No. 271, April 17, 1947)
- '4 Cited as a Communist transmission belt and successor to the Young Communist League (California Committee on Un-American Activities, Report, 1947, pages 103 and 369)

It is said that the first of these citations in which the attorney general designated this organization as subversive and Communist is the strongest public condemnation that can be made by the federal government of a subversive organization.

The Council's attention has also been directed to the April 1938 issue of the 'Medical Center Worker'—Issued by the Communist Party Unit of Medical Center (Columbia Presbyterian) which contains the following statement:

'Medical students with a sense of responsibility to their profession should join the Association of Medical Students and encourage this organization to take a definite position behind the growing progressive forces in American medicine.'

As already noted the Association of Medical Students was one of the two organizations which merged in 1941 to form the Association of Internes and Medical Students.

The Council has reviewed those programs of the annual national convention of the Association of Internes and Medical Students and those numbers of its publication, the *Interne*, that it has had available. From this study, it is apparent that at its national conventions and in the pages of its publication, the Association has welcomed papers by officers of the American Medical Association by prominent leaders in medicine and medical education and by members of the medical profession who are known to be affiliated with organizations and institutions that have been cited as Communist fronts or which have been declared subversive by the Department of Justice.

It has not been feasible for the Council to attempt to poll the medical students, interns and residents of the country to determine their attitude toward the Association of Internes and

Medical Students However, individual students and house officers have made known their concern that, while in their opinion the majority of medical students and house officers are not sympathetic to many of the policies and activities of the association, the general public may mistakenly believe that this organization does represent the bulk of medical students and house officers. Several letters from groups of interns and residents have been published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION pointing out that the association does not speak for them.

The following quotation from a letter by a medical student illustrates the concern that individuals have expressed about the association:

"Although some of the students from America who were at the International Clinical Teaching Congress in England this summer and got the goods on the A I M S are reluctant to put it in writing, I think that I have been able to acquire a general impression that is a fair one.

"First of all, I spent an afternoon at the Congress and several of the European delegates, upon finding that I was not one of the American representatives, spoke to me with some concern. They wondered if the A I M S delegates could be typical representatives of our schools, for most of them were members of so-called minorities that claimed to be discriminated against. What is more, the Europeans thought their tendencies in political thinking were more Communistic than American. Furthermore, when these American delegates pointed out the flaws in our medical system, without balancing them with a true picture of the unequalled advantages that we have in medicine and medical education, it was considered to be providing adverse propaganda. This is but one example, but it illustrates the sort of impression A I M S seems to make generally."

In the latter part of 1948 a letter of inquiry concerning the Association of Internes and Medical Students was sent to the deans of the medical schools. In the course of the next several months, replies were received from all schools. At that time 12 medical schools reported active chapters of the Association of Internes and Medical Students, five reported inactive chapters, two reported that chapters were being organized and 58 schools reported that they did not have chapters. Several deans spoke very favorably about the activities of the chapters in their schools. Other deans, however, reported that it was their own opinion and the opinion of many of their students that the organization was distinctly leftist, that the propriety of certain of its tactics was open to question and that the organization was active in sponsoring political projects far removed from the objectives that would ordinarily be expected of a group organized primarily for the benefit of medical students and interns. One dean reported that he was in possession of very good evidence that the president of the local chapter the year before was closely associated with members of the Communist party and was invited to attend meetings of Communists at which the latest party line laid down by the Cominform was discussed.

On the basis of its study, the Council has reached the following conclusions:

- 1 The Association of Internes and Medical Students has enrolled as members not over 5 per cent of the total number of medical students, interns and residents in the United States.
- 2 Probably the great majority of the members of the association are well intentioned individuals who have joined the association because of the opportunity that they believed it would offer for discussion and action on problems of legitimate concern to medical students, interns and residents.
- 3 The character and activities of the local chapters vary considerably.
- 4 The association has not been declared a subversive or Communist front organization by any official agency of government.
- 5 The national association does have the general reputation of being a left wing organization. This reputation would seem to be justified by its history of close and sympathetic affiliation with the International Union of Students, its participation in joint undertakings with American Youth for Democracy and the frank public support that its

predecessor the Association of Medical Students has received on at least one occasion from a unit of the Communist Party.

- 6 Information should be available concerning the reputation of the Association of Internes and Medical Students as a left wing group to those medical students, interns, residents and other members of the medical profession who are considering identifying themselves with the association.

The Council wishes to state its firm belief that American medical students are mature and responsible persons and that it is both proper and desirable that they should be concerned with problems of medical education, medical practice, hospital care and medical economics. The Council believes also that it is entirely proper that medical students should seek to organize themselves to study these problems and to make their contribution toward their solution.

Because of the conclusions reached above, however, the Council cannot recommend that the American Medical Association lend its support to the activities of the Association of Internes and Medical Students as presently constituted. The Council does believe that there is need for an independent organization of medical students which will develop policies and activities that are acceptable to the majority of medical students. If and when such an organization is developed, the Council believes that it should have the active support and encouragement of the medical profession.

Respectfully submitted,

H. G. WEISKOTTEN, Chairman
HARVEY B. STONE
RUSSELL L. HADEN
WILLIAM S. MIDDLETON
VICTOR JOHNSON
WILLIAM L. PRESSLY
GUY A. CALDWELL
DONALD G. ANDERSON, Secretary

ADDENDUM

At the invitation of the Council, the National Executive Committee of the Association of Internes and Medical Students has prepared the following reply to the Council's report, which the Council presents herewith as an addendum to that report.

"The Association of Internes and Medical Students hereby submits an abridged statement on the report of the Council. Because of space limitations imposed on us, we cannot deal as fully as we should like with all issues. (A full text of our statement may be secured from *The Internist*, 7 East Broadway, N. Y. C.)

"The work of the Council and its report was initiated by the Shurly resolution accepted by the House of Delegates at the June 1948 meeting. The text of that resolution follows:

"WHEREAS, The Association of Internes and Medical Students and the Association of International Medical Students are exhibiting communistic tendencies in their organization, and

"WHEREAS, The American medical profession is opposed universally to any organization which advocates the overthrow of the United States government by force and violence, and

"WHEREAS, These interne organizations and medical students favor strikes that are upsetting to proper medical education, and

"WHEREAS, It is said that these organizations have communistic affiliations, therefore be it

"RESOLVED, That our Council on Medical Education and Hospitals be requested to investigate these organizations as to facts, tendencies, affiliations, and objectives, and that a report of the findings of the Council be given to the House of Delegates at the earliest opportunity.

"The report of the Council should deal with the allegations posed for it in this resolution. Thus it does not do. When, where, and how has the A I M S 'exhibited communistic tendencies,' 'advocated overthrow of the United States government by force and violence,' 'favored strikes,' etc. Such documentations, the Council could not and did not make since no basis in fact exists for these assertions.

'When our national executive committee met with the Council on Feb 8 1950 we were assured that nothing subversive about A I M S had been determined in their investigation This should be categorically stated in their report

'After 18 months of investigation, having found nothing subversive in our program or objectives the Council has announced its conclusion that the A I M S is 'left-wing' This vague catch all phrase is based on an array of supposed facts which in reality are irrelevancies and hearsay Let us examine the facts

"The AMA informant on the 1948 International Clinical Congress spent by his own admission one afternoon at the three week session His overt bias disqualifies the creditability of his remarks He sees the mixed racial character and diverse national origins represented in our group as something sinister We point to it with pride and think it truly representative in the best sense As a matter of record half the delegation were not A I M S members The printed proceedings of the Congress show that the A I M S has constantly given a balanced picture of American medicine and extolled those areas in which it excels

"The A I M S is accused of being left-wing because in 1938 an obscure Communist publication urged medical students to join our predecessor, the Association of Medical Students We can obviously assume no responsibility for statements published by others Should we be condemned for our program against discrimination because Communists are said to endorse these principles also?

"An objective examination of the A I M S requires that we be adjudged on the basis of our policies and activity What is being judged in the report are some of the organizations with which we have been, or are said to have been, associated The citations quoted deal wholly with other organizations To ascribe to the A I M S the alleged character of other organizations that it was said to be associated with is guilt by association It is meaningless unless the nature of the association and the meaning in terms of program is described.

'Professor Kirtley F Mather of Harvard University, geologist and president of the American Association for the Advancement of Science, said recently The concept of guilt by association is one of the most dangerous antagonists of democracy abroad in the land today Similar conclusions were drawn in a recent special report of the AAAS

"Regarding A I M S relationship with the International Union of Students, the following is pertinent. The A I M S recognized from the beginning that the program of the IUS was broader than its own and restricted its participation to activities consonant with its own constitution A nonpolitical service program of student travel and exchange and medical relief was developed

"In recent times the heightening of international tension made difficult even such limited participation in the IUS The 1949 convention adopted a resolution which disaffiliated the A I M S from the IUS

"The statement that the A I M S conventions and journals have had speakers and writers who are members of 'Communist front groups' officers of the AMA, and prominent leaders in medicine and medical education cannot be dealt with here fully, for the crux of the matter, that is the content of their remarks, is omitted from the report. Speakers and writers have been invited as recognized authorities in their fields, and it is not our principle to inquire into their political beliefs Certainly A I M S acquires no political taint in any direction by virtue of having such professional leaders from the AMA and elsewhere contribute to its educational program in their fields of competence

"Nothing is brought forward in the report that in any way documents the statement that we are 'left-wing' The A I M S is not a political organization Does the Council consider the advocacy of improved medical education and interne training adequate remuneration for house officers federal aid to medical education, anti discrimination international travel and student exchange and a national program for adequate medical care as left-wing? If it does it should so state its position and not hedge it about with catch-all phraseology and unsupportable allegations

"We certainly cannot concur with one member of the Council that the Johns Hopkins chapter was 'leftist' because of its long association with Dr Henry Sigerist Does Johns Hopkins, on the faculty of which Dr Sigerist served with distinction, also become thus labeled by this form of reasoning?

"The publication of the AMA report will bring discredit to the organized medical profession, to which people look for leadership as a respected scientific body Within the profession the report will have a disquieting effect. Already some leading medical figures have expressed their concern, and the Council has the letters from which we quote.

'Dr R. G. Bloch, University of Chicago 'The Council's report implies guilt by association to which I cannot subscribe In this school I know the men (in A I M S) as having high ideals'

"Dr J. S. Lockwood, Columbia University 'This report presents another instance of a very disturbing present-day tendency to label as communist-front' any group which sets out to inquire into the validity of established economic and social practices Even in the confidential draft of the report the Council fails to support its conclusions and recommendations with any factual evidence.'

"Drs H. E. Meleney E. M. Bluestone, W. M. Cobb M. B. Visscher W. F. Hewitt, L. J. Goldwater and others have also expressed their concern over this report in terms similar to the above

'We have always enjoyed the respect and friendship of leading figures in medicine We have grown and matured as an organization for 15 years, and we are proud of our program and our accomplishments We will continue to serve the younger members of the profession to help them grow into mature and responsible members of the profession and society'

THE NATIONAL EXECUTIVE COMMITTEE
ASSOCIATION OF INTERNES AND MEDICAL STUDENTS

Supplementary Report of the Council on Medical Education and Hospitals

To the House of Delegates of the American Medical Association

The Council on Medical Education and Hospitals requests the approval of the House of Delegates for the following revisions of its "Essentials of Approved Residencies and Fellowships"

1 Introduction and General Requirements (pages 5 through Section 10 on page 11)

2 Special Requirements A revision of subsection 25 on Surgery (page 31) and the addition of a subsection presenting the special requirements for residencies in preventive medicine and public health

The proposed revisions are appended.

Respectfully submitted,

H. G. WEISKOTTEN, Chairman
RUSSELL L. HADEN
WILLIAM S. MIDDLETON
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DONALD G. ANDERSON, Secretary

ESSENTIALS OF APPROVED RESIDENCIES AND FELLOWSHIPS

INTRODUCTION

Residencies and fellowships in the clinical divisions of medicine, surgery and other special fields provide advanced training in preparation for the practice of a specialty Approval for residency training is limited to programs conducted in general or special hospitals A fellowship is a form of graduate training, similar in nature to a residency, but usually offering greater opportunity for teaching study in the basic sciences and research It is usually considered a medical school, rather than a hospital appointment

It is desirable for the purpose of clarification to differentiate between two terms commonly used in referring to higher medical education Graduate training as used in these Essentials refers to the various recognized plans of training which lead to qualification in a specialty Postgraduate training in contrast, refers to formally organized shorter courses, offered by medical schools hospitals clinics and medical organizations which provide advanced instruction in a limited field, primarily

designed for physicians in practice. Residencies and fellowships in the following branches of medicine are approved by the Council:

- | | |
|----------------------------------|--|
| 1 Medical Services | 24 Obstetrics and Gynecology |
| 11 Dermatology and Syphilology * | 25 Ophthalmology * |
| 12 Internal Medicine * | 26 Orthopedic Surgery * |
| 121 Allergy * | 27 Otolaryngology * |
| 122 Cardiovascular Diseases * | 28 Plastic Surgery * |
| 123 Gastroenterology * | 29 Proctology * |
| 124 Pulmonary Diseases * | 210 Thoracic Surgery * |
| 13 Neurology * | 211 Urology * |
| 14 Pediatrics * | 3 Laboratory Services |
| 141 Allergy * | 21 Pathology * |
| 142 Contagious Diseases | 32 Radiology * |
| 15 Physical Medicine * | 4 Special |
| 16 Psychiatry * | 41 General Practice |
| 2 Surgical Services | 42 Malignant Diseases |
| 21 Anesthesiology * | 43 Occupational Medicine |
| 22 General Surgery * | 44 Preventive Medicine and Public Health * |
| 23 Neurological Surgery * | |

It is recognized that while some hospitals may be unable to meet the educational standards for graduate training in the specialties, as set forth in the Essentials they may be able to offer experience of value to young physicians. These hospitals may well consider the appointment of paid house officers to assist in conducting the professional work of the hospital. Experience of this type does not ordinarily carry credit towards certification in the specialties or towards qualification for membership in special societies.

1. GENERAL REQUIREMENTS

As a prerequisite to approval for residency training a hospital must have been previously registered by the American Medical Association and approved by the American College of Surgeons under its standardization program.

This implies that the hospital must be properly organized, staffed and equipped and that its activities are conducted primarily for the welfare of the patient. While the educational program is supplementary to the primary purpose of the hospital in the care and management of patients it is directly related to this function in that it serves to improve the quality of medical care offered.

Size and Type—The size of the institution is not a primary consideration. The clinical material however, should be of sufficient scope and diversity to enable residents to observe the principal manifestations of the disease conditions in the understanding and management of which they are acquiring additional experience. The number of service or ward beds rather than the total bed capacity is of significance in this connection. In hospitals admitting principally private patients the availability of these patients for teaching purposes is an essential consideration.

Official approval is extended to general and special hospitals offering acceptable programs in the various specialty fields. Programs conducted in hospitals associated with medical schools are ordinarily of three or more years in duration and offer special facilities for progressively graded comprehensive training. A number of hospitals not directly affiliated with medical schools, have organized programs of graduate training which comply with all the requirements of the Essentials of Approved Residencies and Fellowships. Some of these hospitals utilizing their own facilities to the fullest extent have developed acceptable fully approved programs. Other hospitals of this type have supplemented their educational program through affiliation with medical and graduate schools or with other hospitals which are able to augment the residents' training in those phases which might otherwise be considered deficient. The rotation of residents from an approved hospital to an affiliated institution

which is able to provide experience lacking to the parent hospital is often desirable when properly supervised.

Plant and Equipment—The physical plant should be adequately constructed and planned to assure proper medical and hospital care as well as safety and comfort for the patient. Equipment, appliances and apparatus such as are commonly employed in the practice of modern scientific medicine should be available. In those departments in which residencies are being offered there should be additional space and equipment available for the use of the resident staff in addition to that ordinarily required by the service.

1 Staff There should be an organized staff of ethical licensed physicians holding the degree of doctor of medicine from medical schools acceptable to the Council on Medical Education and Hospitals of the American Medical Association. A well organized and well qualified staff is one of the most important requisites in a hospital assuming responsibility for residency training. It may well be the determining factor in the development and approval of a graduate training program. There should be an educational committee of the staff which is responsible for the organization of the residency program for the supervision and direction of the residency program and for correlating the activities of the resident staff in various departments of the hospital. The committee might well include the pathologist, the radiologist and other department heads who because of the inherent relationship of the departmental work will be called on to assist in the training program.

The particular specialties in which residents are being trained should be represented in the staff by well qualified experienced and proficient physicians whether or not they hold membership in special societies and colleges or are certified in their specialty. Adequate organization of the medical staff presupposes careful selection of the head of the department and of the chiefs of the various services. In addition to their qualifications in the specialty they should have high professional standing and possess the attributes of the teacher. Being responsible for the training of residents they should be chosen on the basis of ability, aptitude and interest.

Members of the attending staff should be assigned by the department head to specific responsibility as far as the work of the services is concerned. The service of each attending should include an adequate number of patients and extend over a sufficient period of time to elicit his full interest and attention while on service. On the other hand the service should not be so large as to be a burden to the attending staff and thus result in reduced attention to the education program. In all instances it is imperative that the head of the department be available to assume full responsibility for supervision of the work of the department.

The staff must hold an adequate number of regularly scheduled clinical pathological conferences and other staff meetings at which the histories, clinical observations, laboratory studies and pathology of selected cases are reviewed. Scientific meetings at which papers are presented by members of the staff or guest speakers are considered commendable but do not serve to meet the requirement of these scheduled conferences. In addition to meetings of the staff as a whole it is expected that departmental conferences will be conducted in which residents should take an active part so that the quality of the service given by that department to its patients may be recurrently evaluated. Other educational activities requiring the full support and cooperation of the staff are described under Training Program and Applied Basic Sciences (Sections I-8, I-10) and under Special Requirements (Section II).

2 Department of Radiology The department of radiology should be under the direction of a qualified radiologist proficient in the various functions of his specialty. He must cooperate fully in the training of all hospital residents and supervise any direct contact which they may have with the work of the department. This supervision is not full time necessitates at least daily visits to the hospital during which the radiologist is expected to be available for consultation with the resident staff in addition to supervising the work of the department.

The department should contain modern roentgenographic, roentgenoscopic and where indicated therapeutic equipment and

* Indicates specialties in which certifying boards have been established.

1. Candidates may be certified by either the American Board of Internal Medicine or by the American Board of Pediatrics. Applicants must fulfill the certification requirements of the Board concerned before they are eligible for examination in the subspecialty.

2. Candidates may be certified by the American Board of Internal Medicine; applicants must fulfill the Board's certification requirements before they are eligible for examination in the subspecialty.

3. Candidates must fulfill the certification requirements of the American Board of Surgery before they are eligible for examination by the Board of Thoracic Surgery.

radium adequate for the needs of the hospital. The departments should be properly organized to carry out its functions in an effective manner. It should keep adequately indexed records including cross indices, to assure efficient operation and to facilitate investigative work. These requirements are essential in institutions offering residency or fellowship programs in any field. (A description of the special requirements for a residency in radiology is given in Section II-24.)

3 Department of Pathology The department of pathology should be under the direction of a qualified pathologist who shall be prepared to cooperate fully in the training of all hospital residents and supervise any direct contact they may have with the laboratory. There should be continuous supervision of the laboratory by the pathologist who preferably should have no responsibilities outside the hospital that would prevent his being available for consultation and for guidance of the residents' work.

The department should provide adequate space and equipment for the residents use in addition to that required for the proper functioning of the service. Apparatus, reagents and materials necessary for the operation of a modern clinical and pathological laboratory should be available. The department should be organized to provide a high quality of service for the clinical departments and to permit of its active participation in the educational program. An efficient system of records including cross indices should be maintained to assure proper functioning of the laboratory and to facilitate investigative work. This department should assume much of the responsibility for the clinical pathological conferences and other educational activities of the staff.

The facilities of the autopsy room should be ample enough to permit participation by the resident staff. Thoroughness in postmortem examination should be emphasized. Complete necropsy records should be kept on file and each should contain a summary of the clinical record and detailed description of both the gross and the microscopic observations. Residents of all departments should attend postmortem examinations unless other important duties prevent. They may with value participate in the performance of necropsies including the preparation of the protocol, and in the review of microscopic findings on materials derived from their own and other services.

It is expected that hospitals assuming responsibility for resident training will maintain a high autopsy rate. It is felt that the autopsy rate is a reliable gauge of the staff's interest in scientific advancement. (A description of the special requirements for an approved residency in pathology is given in Section II-17.)

4 Medical Library Institutions offering approved residencies and fellowships should maintain an adequate medical library containing carefully selected, authoritative medical textbooks and monographs of the latest edition, the Quarterly Cumulative Index Medicus and current medical journals in the various branches of medicine and surgery in which training is being conducted. For the guidance of the hospital in developing its library the Council has prepared a list of recommended texts and journals, which is available on request.

The medical library should be in the charge of a qualified person who should act not only as custodian of its contents but also arrange for the necessary cataloging and indexing which will facilitate reference work by the resident and attending staff. A permanent committee of the medical staff should be responsible for the organization and development of this department.

The medical library should be readily accessible to the resident staff, located if practicable, within the main building of the hospital. Its size may depend to some extent on the availability and the use which can be made of other library facilities in nearby institutions. Every hospital conducting graduate training must have, however, a basic collection of medical texts and journals available for ready reference, whether or not accessory facilities are available.

5 Medical Records Department The record department should be adequately supervised, preferably by a qualified medical record librarian. An efficient record system should be maintained including alphabetic and diagnostic patient indexes. Operative reports, roentgenological and pathological records should be

properly classified permitting of ready reference. The employment of the Standard Nomenclature of Disease and Operations is recommended for all medical records.

Clinical records must be complete and include the patient's chief complaint, case history, physical examination on admission, a provisional diagnosis, record of laboratory examinations, therapy employed, descriptions of operations if performed, adequate progress notes, consultation remarks, a final diagnosis condition on discharge, necropsy observations in case of death if postmortem examination is performed, and an appropriate summary. The records should show by signatures or at least initials, the names of all physicians writing the record in whole or part as well as the names of the staff members by whom the records are verified. Each completed record should be verified by a responsible staff member.

In a hospital assuming responsibility for graduate training it is expected that the clinical records be sufficiently comprehensive to permit of their use for teaching purposes. While responsibility for the preparation of parts of the record, such as the admission work-up may be delegated to the intern or resident assigned to the case, the ultimate responsibility for the completed record lies with the staff member in charge.

There should be a records committee of the staff which will meet periodically with the record librarian to review the clinical charts and report their findings. This committee may be empowered to make recommendations concerning the disciplinary measures necessary to assure the maintenance of adequate clinical records on a current basis. Satisfactory records can be maintained only through the continuous and cooperative efforts of the staff, the medical records department and the hospital administration.

6 Eligibility of Applicants Candidates for appointment to an approved service should be graduates of medical schools approved by the Council on Medical Education and Hospitals who have served an internship of at least one year in an approved hospital. It is further recommended that candidates seeking residencies or fellowships in the surgical specialties should first complete at least one year of general surgical training beyond the internship, before beginning training in the specialty itself.

The development of a satisfactory training program requires first of all a careful selection of applicants for appointment to the resident staff. The hospital administration and the medical staff through the appropriate committee for review of credentials should closely scrutinize the qualifications of each candidate and give consideration to such factors as character, preliminary education, medical education, and intern training. A primary qualification in considering a candidate for acceptance should be evidence of excellent character.

Hospitals may wish to consider the appointment of candidates from foreign countries. A preliminary list of foreign schools considered as offering training comparable to that of medical schools in this country has been published by the Council. Since this list is only a preliminary one, the position of the Council with respect to foreign medical schools not on this list is that it neither approves nor disapproves these schools but must leave to each hospital the decision as to whether graduates of these schools have the training and qualifications that the hospital deems essential in those whom it appoints as residents.

7 Training program Duration Graduate training in the various branches of medicine should be of sufficient duration and education content to enable the resident on completion of his training, to begin the practice of his specialty in a scientific manner. With the exception of a few specialties e.g. pediatrics, a fully organized, comprehensive program should include three or more years of formal residency training. Not all hospitals however are able to develop programs of this type. A given approved residency may not provide complete training in a specialty field but if properly organized can make a substantial contribution to the resident's advanced training. It is desirable that hospitals, which cannot for one reason or another, develop a fully approved program, integrate their training plan with that of other approved hospitals to assure the resident of the opportunity of completing his training during which he is given progressively graded responsibility.

Supervision The educational effectiveness of a residency or fellowship depends largely on the quality of its supervision and organization. The responsibility for these important functions lies with the department heads and a representative committee of the medical staff. Heads of departments should be responsible for their own services, the committee assuming a larger role in directing and correlating the various aspects of the educational program. The department head should have qualifications and breadth of experience which will enable him to carry out an effective training program. Those members of the attending staff who assist in supervising the residents' work should also have had acceptable training in the specialty and should demonstrate an interest and ability in teaching. In some hospitals, where the number of men on the staff who have had advanced training in the specialty is limited, it may be desirable to assign responsibility for the supervision of the training program to physicians recognized in their field, on a consulting basis. In such instance, it is expected that the consultant assuming this responsibility, will devote sufficient time to the residency program to assure the close and continuing supervision of all phases of the resident's work.

Resident Responsibility Aside from the daily contact with patients and the attending staff, and participation in the organized educational program, the assumption of responsibility is a most important aspect of residency and fellowship training. Accordingly, as ability is demonstrated, an increasing amount of reliance should be placed in the judgment of residents in diagnosis and in treatment, as well as in the teaching of interns and medical students. In surgery and the surgical specialties, the resident should be given ample opportunity to perform major surgical procedures under supervision, particularly in the later stages of his training, in order that he may acquire surgical skill and judgment.

Methods of Instruction It is important that methods of instruction be employed in the training program, which are best suited to the special field. Emphasis should be placed on personal instruction at the bedside, in the operating room and in the delivery room, on related laboratory studies, teaching rounds, departmental conferences or seminars, clinicopathologic conferences, demonstrations and lectures.

Clinicopathologic conferences should be held preferably each week for the general staff, or, in larger hospitals it may be advisable to arrange separate meetings for each of several departments in order that all of the available material may be presented properly. The program should include the demonstration of pathologic material from the operating room and from autopsies. The amount of material to be reviewed will usually require a weekly meeting and permit the more extensive use of the fresh and frozen specimens which are preferred to fixed specimens for demonstration and study. Details of the program and its manner of presentation may vary but the following procedure represents the plan followed in many hospitals.

- 1 Presentation of abstract reports of selected cases
- 2 Demonstration of gross and microscopic pathology
- 3 Correlation of clinical and pathologic findings
- 4 Comparison of reports with the literature
- 5 Summary of findings and conclusions

The success of the clinicopathologic conference lies chiefly in the ability of the pathologist to teach and to interpret pathologic lesions in terms of clinical manifestations of the disease.

A record of all conferences of the medical staff should be kept by every hospital for both current and future reference.

Journal Club Familiarity with and critical analysis of pertinent medical literature is an important feature of medical training. The journal club or seminar is an excellent means of stimulating interest in scientific literature. In smaller hospitals, it may be conducted as a joint activity of several departments. Particularly in larger hospitals where the number of residents justify, separate meetings of this type for each service is considered advantageous. There are several methods of conducting a successful journal club. Each member of the resident staff can be requested to make a comprehensive review of the important articles contained in one or more current medical journals, reporting regularly at these meetings. The plan may be supplemented by assignment of a specific subject

or disease entity to one or more of the participants for a complete review of the related past and current literature. Other plans for stimulating study of this nature may be arranged in conjunction with medical staff conferences or through clinical research pertaining to problems under discussion or in connection with patients under treatment in the hospital. A successful journal club will prove stimulating not alone to the resident staff but to the attending staff as well.

Resident Assignments **Hospital Service** The resident staff should be assigned to a sufficient number and variety of hospital patients to assure a broad training and experience. However, hospital duties should not be so extensive as to prevent giving ample time for other important phases of the training program. The completeness of the preliminary study of all patients necessary in arriving at a correct diagnosis, should be emphasized. The variety of the pathological conditions encountered are also of primary importance.

Outpatient department The importance of the outpatient department and its role in the training of the resident staff should be emphasized. Here there is opportunity for acquiring further knowledge and experience, particularly in differential diagnosis and follow-up observation. Study of end results in patients operated on is of primary importance. The resident staff should have a definite assignment to the scheduled clinics. They should be required either to attend all clinics of the hospital service to which they are assigned or to devote full or part time to a series of clinics during a certain period of their training. The former plan is considered more satisfactory because it provides a longer contact with the same patients, including the periods before and after hospitalization. Other activities should not be allowed to conflict with the work of the resident staff in the outpatient department.

The major responsibilities of carrying on outpatient department work should not be given over entirely to the resident staff. The educational value of work in the outpatient department is largely dependent upon the amount of interest displayed by heads of departments and high-ranking members of the attending staff. In any acceptable plan of graduate training, they should be in regular attendance at the diagnostic and follow-up clinics for supervision and instruction of the assigned personnel working under their direction.

Emergency service All hospitals are called on to care for a certain number of patients who present themselves for treatment in case of accidents or other emergencies. The service may vary from a few patients seen in emergency in the outpatient department to the extensive and well organized accident wards which care for traumatic cases in connection with the ambulance services of large hospitals. Regardless of the size of the service, advantage should be taken of this opportunity for the resident staff to obtain experience in the care of these types of cases. Being available in the hospital at all times, they may be called on to take the initiative in making differential diagnosis rendering first aid treatment, and assuming the major responsibility for the immediate care of a variety of traumatic conditions. They must also decide when patients should be admitted to the hospital. Under proper supervision of the attending staff, assignment to the emergency service is a valuable experience for the residents.

Operating room assignment In surgery and the surgical specialties, work in the operating room constitutes an important part of the residents' responsibility. During the course of his training, the resident should be given sufficient operating responsibility to acquire surgical skill and judgment. This experience should be progressively graded to the end that on completion of his training, the resident is able to assume individual responsibility for major surgical procedures. A more detailed discussion of this phase of the residents' training is found under the appropriate sections of the specialties concerned.

Teaching and investigation Residents and fellows should be assigned to teaching responsibilities as their experience increases. The stimulating teacher-student relationship should be part of the resident's experience, not only as a student of the attending physician, but as a teacher of interns and nurses and in hospitals affiliated with medical schools, as junior and senior medical students.

When the facilities of an institution permit, and when the residents are competent and interested they should be encouraged to engage in investigative work. Such investigation may take the form of research in the hospital laboratories or wards, comprehensive summaries of medical literature, or the preparation of statistical analyses based on clinical case records. The interests of the various members of the resident staff should be carefully considered when arranging assignments to this activity, inasmuch as ability and desire to do this type of work differ widely. Intelligent direction and supervision should be provided in selecting the project to be undertaken and in its development. It is realized that only an occasional individual will make contributions or discoveries of lasting value to the medical profession. However, those who undertake and pursue a research problem receive a stimulus which can be obtained in no other way. An understanding of the methods and problems involved in research leads to a better interpretation of the great mass of current scientific literature which must be constantly reviewed by the progressive physician or surgeon.

When feasible each member of the resident staff, either individually or in collaboration with other members of the department, should be encouraged to prepare a formal paper suitable for publication.

It is not essential, or even desirable that all hospital residencies should adopt exactly the same program or that they should offer a rigidly uniform sequence of experience. It is essential, however, that all hospitals participating in graduate training should be able to meet the fundamental essential requirements for an approved program and either alone or in collaboration should attain comparable results in the quality of training and amount of experience obtained.

8 Collaborating and Affiliating Programs Some hospitals that have excellent facilities and clinical material for the greater part of an approved training program may be deficient in some particular phase of the work that can be well provided in another hospital of graduate training calibre. In such instances the hospital which has the greater part of the required clinical material and facilities may become the parent institution and collaborate with the second institution to provide a well rounded and complete program of training in a given specialty.

In other instances, especially on university connected services, the chief of an approved service may elect to augment the opportunity afforded his trainees for clinical experience by rotating them to a smaller affiliated institution for short periods of service. Such short term services need not be independently approved. However, their contribution to the resident's training is taken into consideration and recognized when evaluating the over all program of which it is a part. The departmental staff of the parent institution sponsoring the program must assume responsibility for the resident's training during the period he is assigned to the affiliating service as well as when he is serving at the parent hospital. *Under arrangements of this nature, it is not intended that the resident be assigned to affiliating services without supervision even though he may obtain extensive experience in this way.* The resident's work must be properly supervised at all stages of his training. In general, affiliated services should not constitute more than a third of the training period. Hospitals which can offer satisfactory training for more than this period can probably develop acceptable programs of their own.

9 Basic Science Training Competence in any of the various specialties in clinical medicine requires a knowledge of the basic medical sciences as related to that specialty. Therefore acceptable residency and fellowship programs must provide for training in the applied basic medical sciences. Such training does not necessitate formal course work specific assigned laboratory exercises, or affiliation of the residency hospital with a medical school, it should be distinctly of an applied nature closely integrated with the clinical experience of the resident.

Any resident seeking competence or certification in a specialty must be able to apply at least the following basic sciences to his special field of medicine: anatomy, bacteriology, biochemistry, pathology, pharmacology and physiology.

Undergraduate education in an approved medical school provides a background for an understanding of these sciences. In a graduate training program, therefore, training in basic sciences should stress reviews of their clinical application and not constitute primarily a review of undergraduate work.

Anatomy Anatomy at the residency level may well be taught, reviewed or learned from the living body, on the operating or examining table or from the fresh tissues in the pathological laboratory. More important in anatomical instruction of residents than an available anatomical laboratory is the attitude and enthusiasm of the hospital staff in availing themselves of opportunities to teach and learn applied gross and microscopic anatomy from clinical and pathological material. Opportunities for anatomical dissection, when available, may be utilized for supplementary training.

Bacteriology Hospital laboratories should have adequate facilities and personnel qualified to carry out diagnostic bacteriological studies and those in the allied fields of parasitology, mycology, immunology, and serology. The resident staff should make use of the educational opportunity provided through the study of bacteriological material from the hospital services, correlating the laboratory study with its clinical application. Members of the resident staff who exhibit a particular interest in this field might well be assigned to the department for additional investigative work.

Biochemistry The hospital biochemistry laboratory should provide the resident with opportunities to broaden his knowledge of biochemistry as related to such clinical problems as he may encounter in his specialty, for example, water balance, acid-base equilibrium, glucose tolerance, and blood or urine levels of significant metabolic, nutritional or therapeutic elements. Such applied basic science work in biochemistry is far more valuable than a formal review course in the field.

Pathology In a well conducted department of pathology of an approved hospital there is opportunity for correlating much basic medical science material with problems of clinical medicine. Applied gross and microscopic anatomy may be effectively learned from necropsy and surgical specimens. The clinical-pathologic conference should and can be one of the most effective devices for correlation of the basic sciences with clinical medicine.

Pharmacology Since the principles of pharmacology are involved in every therapeutic administration of chemical substances to patients, the wards of the residency hospitals provide very suitable opportunities for the resident to apply and expand the knowledge of pharmacology previously gained in medical school.

Physiology Historically, one of the most fruitful fields of investigation into the normal functions of the body has been the study of abnormality of function to which the resident in clinical medicine is constantly exposed. Clinical medicine affords a rich field for the study of physiology and a potent stimulus to the resident to apply the basic principles of this science. Much of the equipment and special apparatus employed in clinical studies of the patient are likewise used in physiology, so that clinical studies provide ample opportunity and stimulation for the resident to supplement his knowledge of physiology with applications of the science to clinical problems. Encouragement and opportunity for an enlarged understanding of body function in health and disease should be part of the experience of the resident in any of the specialties in the course of his clinical work.

10 Miscellaneous Contract for Appointment It is considered desirable that the candidate for the residency and the hospital enter into a formal contract at the time of the appointment. Contracts for one year, renewable by mutual consent are preferable. Once made, the terms of the contract should be honorably fulfilled by both parties. The contract may be terminated following failure of one or the other parties to carry out its terms of the contract, or by mutual agreement. Violations of contract may be made a matter of record in the hospital's or individual's file.

Intern-resident relationships Those hospitals training both residents and interns should recognize their obligation to both

groups and should plan their programs so that both interns and residents have opportunities for training and experience. The residents should participate in the teaching of the interns and in the supervision of their activities. Residents should not, however, act so as to diminish the contact of the interns with the attending men or assume the supervisory or disciplinary functions of the staff.

PERSONAL RECORD

I It is considered desirable that a personal record of the resident be maintained by the department responsible for his training. This should include a record of his assignments, results of examinations, personal evaluation by attending staff members who intimately supervised his work, and such detailed information as may be necessary in rating the resident's total accomplishment at the end of his training. The close personal contacts which exists between department heads and the resident staff is usually sufficient of itself to make possible an accurate evaluation of the resident's judgment and professional progress. All records relating to the resident's work in the hospitals should be preserved and should be made available to examining boards and other responsible agencies if requested.

SURGERY

(The general and specific requirements for residencies in surgery as set forth in these Essentials have been adopted jointly by the Council on Medical Education and Hospitals of the American Medical Association, the American Board of Surgery and the American College of Surgeons.)

1 *Duration of Training*—Residencies and Fellowships in general surgery which are designed to meet the requirements of the Council on Medical Education and Hospitals, the American College of Surgeons, and the American Board of Surgery, should include, after one year of internship, either three or four years of progressive residency training. A program need not necessarily be confined to a single hospital. Collaborative programs can be developed where two hospitals of graduate training caliber have complementary clinical resources which can be combined to advantage in developing an acceptable program.

The American Board of Surgery recognizes two methods of qualification for its examination.

Group I In addition to one year of internship or its equivalent a candidate must have a minimum of four years of training in surgery in an institution or institutions acceptable to the Board. Three of these years must be spent in an approved residency or clinical fellowship. One year may be spent in a surgical specialty, or experimental surgery or research or work of such a character that the relation of the basic sciences of anatomy, physiology, pathology, bacteriology, biophysics, and biochemistry to surgery is emphasized.

Group II In addition to one year of internship or its equivalent a candidate must have three years of residency training in an institution or institutions acceptable to the board, followed by two years of study or practice of surgery, during which time sufficient operative experience to meet the board's requirements must be obtained. The latter two years must be taken under the supervision of a surgeon certified by or acceptable to the board and carrying on his practice in hospitals approved as meeting the minimum hospital requirements of the American College of Surgeons.

The Board of Regents of the American College of Surgeons has taken action recommending graduate training programs of four years' duration for trainees who begin a surgical residency program July 1, 1950, and thereafter. However, until a sufficient number of four-year programs have been developed approved three-year programs in general surgery will continue to be recognized.

Training in general surgery is recommended as a preliminary to graduate training in most special fields of surgery. For some surgical specialties, there is a definite amount of preliminary training in general surgery required. To meet such requirements, hospitals offering general surgery programs of less than three years, but of acceptable quality may be approved and separately listed.

As stated in the general requirements it is not essential, even desirable that all hospital residencies should adopt exactly the same program or that they should offer a rigidly uniform sequence of experience. It is essential however that all hospitals participating in graduate training should be able to meet the fundamental essential requirements for an approved program and either alone or in collaboration should attain comparable results in the quality of training and of experience obtained.

II *Scope of Training*—Residencies in general surgery should offer a broad surgical training and should preferably include some experience in closely related special fields of surgery. Large hospitals, which have narrowly departmentalized services, can usually provide this experience by agreement between the chiefs of two services to exchange residents for a definite period of time or by planning a rotation of assignment of residents to selected surgical specialty services. Urology, gynecology and orthopedic surgery are the specialties most commonly included. However, other surgical specialties (except perhaps ophthalmology) may be considered in making the selection.

At least two years of the training program should be spent specifically in the Department of General Surgery. Assignments for experience in special fields of surgery must, therefore, be limited in number and the selection should be made for each hospital on the basis of including those specialty departments which can contribute most effectively to the training of the general surgeon.

III *Application of Basic Medical Sciences in Surgical Training*—The application of the basic medical sciences should be stressed in relation to the clinical work of the residents throughout the whole training program. Frequent departmental conferences for a detailed discussion of problem cases on the surgical service are important for this, as are also the clinical pathology conferences. The residents should study and discuss with the pathologist all tissues removed at operation and likewise all autopsy material from patients on their respective services. It is desirable and in most programs it is possible to have the resident assigned for a period of service in the department in pathology.

Surgical anatomy should be stressed by the attending surgeons in discussing surgical cases with the residents, and also by the pathologist, as far as is feasible, in the performing of autopsies. In addition opportunity for the residents to work out special anatomical problems by performing regional dissections should, if possible, be provided.

Research work offers an important opportunity for stressing the application of the basic sciences in clinical problem. Reasonable facilities for research work by the residents should be provided, together with stimulating guidance and supervision.

IV *Surgical Staff*—The surgical staff should be composed of surgeons who are highly qualified in both surgical skill and judgment. It should be organized and harmonious, with the designated head or chief of service responsible for the quality of work done in the department. The position of chief of service should not be rotated as an honorary appointment but should be held by the surgeon best fitted for this responsibility. The members of the staff should have a real interest in teaching and in the welfare of the residents and must be willing to give the time and effort required by the educational program.

V *Clinical Material*—The hospital must be able to provide an adequate number and variety of surgical patients. Arbitrary figures cannot reflect these considerations accurately. Under ordinary circumstances, however, a general hospital to support a surgical residency should have annual admissions to the surgical division numbering approximately 300 to 400.

For a surgical residency, the hospital should be able to provide an adequate number and variety of service cases. This is essential to give the progressive operative experience necessary for the residents of the third and fourth year. The residency program should be organized so that residents will hold positions of increasing responsibility for the care and management of patients with surgical conditions and have sufficient operative experience to acquire surgical skill and judgment.

SECTION	TOTAL
Internal Medicine	1 644
Surgery, General and Abdominal	1 285
Obstetrics and Gynecology	519
Ophthalmology	314
Laryngology, Otolaryngology and Rhinology	223
Pediatrics	339
Experimental Med. and Therapeutics	61
Pathology and Physiology	191
Nervous and Mental Diseases	438
Dermatology and Syphilology	247
Preventive & Industrial Med. & Pub. Health	263
Urology	194
Orthopedic Surgery	280
Gastro-Enterology and Proctology	169
Radiology	270
Anesthesiology	231
General Practice	2 029
Diseases of Chest	253
Miscellaneous Topics	35
Physical Medicine and Rehabilitation	51
No Sec. or more than 1 Section	999
TOTAL	10 119

WASHINGTON NEWS

New Selective Service Orders

The President's order putting Selective Service into effect makes important changes in the status of reserve officers, medical officers included. From now on the three services themselves have the authority to call up reserves, with or without their consent. Until the President's order they did not have this authority. However, every indication now is that no reserves will be called up against their wishes unless and until the manpower situation grows a great deal more critical.

The air force has issued a statement detailing the classes of enlisted men and officers urgently needed. Medical officers are included. The navy issued a statement, but made no mention of medical officers. A similar statement is forthcoming from the army, and expectations are that it will specify medical officers. These are merely appeals to reserves—officers and enlisted men—to volunteer for active duty. Incidentally, under navy policy all honorably discharged officers are considered members of the navy reserve. Army and air force officer veterans are not kept automatically on the reserve rolls but must have signed up by their own choice and their own overt action.

One high-ranking military medical officer gave this explanation of the situation. "More men are being brought into the services. It is obvious that all essential functions of the services will have to be increased. This certainly means the medical services." For the next few weeks the only question is whether medical reserve officers will volunteer in sufficient numbers to make mandatory calls unnecessary.

Senate Hearings on Reorganization Plan 27

A few days before the House vote on Reorganization Plan 27, the Senate, through its Expenditures Committee, began examining this proposal to make Federal Security Agency into a Department of Health, Education and Security. The Senate was faced with a rapidly approaching deadline, if the House failed to disapprove the plan, the Senate would have to reject it by the end of July or the new department would be created.

Representing the American Medical Association at the Senate hearings was Dr. Louis H. Bauer, chairman of the Board of Trustees. In opposition, he offered the same basic arguments he had used against the plan at House hearings in June. This time Dr. Bauer was able to cite the action taken by the House of Delegates the previous week. "Our House of Delegates," he said, "expressed its firm conviction that Reorganization Plan 27 will not promote the health of the people and will not effectuate the recommendations of American medicine toward that end."

"In the first place," Dr. Bauer told the Committee, "'Reorganization Plan 27' is a complete misnomer. The plan does not reorganize anything. It merely elevates to an executive status an existing agency of the federal government, with all of its inadequacies."

Dr. Bauer repeated A. M. A.'s principal arguments against the proposal, stressing that it (1) threatened still further to subject health activities to lay control, (2) would prepare the way for national health insurance and (3) would delay, if not prevent, the creation of an independent agency or department, under a doctor of medicine, to handle all health functions.

The committee heard a number of other witnesses argue both sides of the question. Also testifying against the plan were several of the Senators who sponsored the resolution of disapproval, Taft, Hendrickson, Knowland, Smith of New Jersey and Butler.

Senator Taft said he feared the "power and supervision" a secretary might exert over health and education functions. He also declared that even now in FSA, these two functions are dominated by the welfare influence rather than medical and educational influence. Senator Hendrickson objected to the way plan 27 was presented, "clothed in the appealing wraps of the Hoover Commission," although in fact it does not carry out the commission recommendations. Like Taft, he feared that setting up this department would "mortgage the future possibility for a separate department of health." In two days of hearings, the committee listened to a score or more of wit-

nesses largely a repetition of testimony given before the House committee.

FSA Administrator Oscar Ewing said the insistence of the several professions on separate departmental status had blocked similar reorganization plans in the past and urged the committee to realize that "governmental structure must be set up to serve the citizen, not exalt the profession."

Taking him up on this argument Senator Karl Mundt (Republican, South Dakota) wondered whether in the fields of health and education professional persons rather than politicians should be listened to.

The dispute over plan 27 binds educators and public health people well divided. After one witness told the House committee that his group backed the idea and intimated that most educators felt the same way, another important national association quickly offered its denial. This was the National Council of Chief State School Officers, whose spokesman declared, "The vast majority of the nation's educators are committed to an independent agency for education in the federal government." He then listed six associations, including the National Education Association which in the past year have formally demanded an independent education agency. Similarly, public health officials and workers are of several minds on this issue. This was made plain after a witness who said he represented American Public Health Association testified for the plan. Members of the State and Territorial Health Officers Association were quick to announce that their association is on record as favoring a separate department of health, not a triple department. A few days later this association—a large and influential part of the A. P. H. A.—officially reaffirmed its policy.

New Trend in Attitude on Hospital Grants

Federal Security Agency officials report an encouraging trend in states' attitudes toward hospital grants under the Hill-Burton Act. They say that now more high priority areas (where need for hospitals is greatest) are applying for federal assistance and that comparatively applications are falling off in areas where the need is not so critical. This reverses the original trend when a high percentage of grants were going to urban or high income centers. Less than a year ago FSA was disturbed by this trend, which resulted in hospital funds going to areas which could take care of almost all their own needs without federal help. Government officials say the shift can be attributed directly to last year's amendment to the act, which increased the maximum federal construction contribution from one third to two thirds. There may be a change in the attitude of states toward Hill-Burton funds. Now only six states are operating under the "variable scale," which allows poorer communities to take advantage of the full federal contribution. The others have chosen to operate on a flat, statewide scale, applicable to every community regardless of its income level. There are strong indications that next year a large group of states will switch over to the variable scale, thereby making more federal dollars available to low income communities. The advantage of the statewide scale, FSA officials say, is that it allows moderate or high income areas to receive higher U. S. grants than would be possible if these areas were judged on their individual needs.

Trade Practice in Optical Industry

Effective July 30, the country's wholesale optical industry will be governed by a new set of trade practice rules, worked out by the Federal Trade Commission and representatives of the industry. The agreement covers every field in which a company might attempt to exert unfair or monopolistic pressure including price discrimination, "spindling" of orders, advertising, special services, deceptive use of corporate names and misrepresentation. One section requires that imported optical goods be clearly identified as such and another prohibits sale below cost. The agreement, under the Robinson Patman antitrust discrimination act, was drawn up at the request of the industry and carries the force of law.

GOVERNMENT SERVICES

Navy

Gift of Memorial Hospital to Newfoundland

The 81st Congress authorized the Secretary of the Navy to construct and the President of the United States to present to the people of St. Lawrence, Newfoundland, a memorial hospital. This memorial would be a token of appreciation of the heroic services of the people of that mining village and of Lawn in Newfoundland in saving the lives of U. S. naval personnel on the two naval vessels, the *USS Pollux* and the *USS Truxtun* wrecked near St. Lawrence in 1942. The lives of few of these men would have been saved except for the prompt and tireless efforts of these people. The cost was not to exceed \$375,000. Funds have not as yet been appropriated for the project. In April representatives of the U. S. Navy met with representatives of the government of Newfoundland to discuss the construction of the proposed hospital; preliminary plans will be made and Congress requested to appropriate the necessary funds for the construction of the hospital.

Tuberculosis Among Navy Employees

A decrease in the incidence of tuberculosis among Navy civilian employees is reported by the Surgeon General as a result of the Navy Medical Department's continuing its chest roentgenogram program. Reports from naval activities in the United States and overseas show that of 213,442 civilian employees who were given roentgen examinations in 1949, 4 of every 1,000 employees had evidence of tuberculosis which required immediate treatment. In 1948 the incidence rate was 6 in every 1,000. During each of the two years three of every 1,000 Navy employees were found to have evidence of other chest diseases, such as lung tumors and heart disease. Chest roentgenograms are made annually for all civilian employees when they enter and when they leave naval employment.

Awards and Commendations

CAPT LEO CROMWELL THYSON

The Secretary of the Navy presented the Navy Distinguished Service Award to Captain Leo Cromwell Thyson June 19. The citation read, in part, as follows:

For exceptionally meritorious and distinguished service to the government of the United States while a prisoner of war at the Japanese prison camps near Shanghai, China, from Feb. 1, 1942, to May 15, 1945, at Fengtai, China, from May 15 to June 19, 1945, and at Hakodate, Japan, from June 30 to Sept. 14, 1945. Handicapped by the lack of adequate supplies and equipment to combat the frequent plagues of malaria, dysentery and nutritional diseases, he succeeded, by his personal and indefatigable endeavors, in obtaining vitally needed medicines and in maintaining an exceptionally low rate of mortality among the prisoners. Heedless of the possible fatal effects of Japanese-made vaccines, he insisted on testing all serums on himself before administering them to others to determine the proper dosage for the internees. On one occasion, Captain Thyson became violently ill as a result of one of his experiments. Humiliated on several occasions and once beaten by Japanese guards for his efforts, he persevered in his attempts to obtain better food and living conditions for the prisoners and, by his pertinacity, succeeded in procuring the release of all seriously sick and aged prisoners from work details. Although suffering from disease and malnutrition himself, Captain Thyson, by his devotion to duty during the long period of incarceration, saved the lives of many of his fellow prisoners thereby reflecting the highest credit on himself and the United States naval service.

Public Health Service

Health Mission to Greece

Dr. O. F. Hedley, of the Public Health Service who is serving as chief of the Public Health Division of the ECA Mission to Greece, returned recently to the United States to confer about the Greek health program. Dr. Hedley reports that the health of the Greek people reached its highest postwar level in 1949. The three most important public health problems today are tuberculosis, lack of sanitation and a shortage of trained health workers, particularly nurses. The malaria control program in Greece is outstandingly successful. There were about 50,000 cases of malaria last year, compared with about 2,000,000 cases annually in prewar years. Before the war the Greek people consumed about \$1,200,000 worth of quinine a year, more than one fifth of the entire world production. The expenditures for antimalarial drugs have been sharply reduced. The expenditures for DDT are about \$300,000 per year.

Tuberculosis is the major health problem in Greece today. The United Nations International Children's Emergency Fund has tuberculin tested more than 800,000 children and has vaccinated more than 500,000 Greek children against tuberculosis. More than half a million persons have been given roentgen examinations through the Chest Institute and over 1,000 beds for tuberculosis patients will be added to Greek hospitals under the Marshall Plan. A 200-bed sanitarium has been planned in cooperation with the Pan-Cretan Foundation. The current sanitation program is primarily for improving water supplies to help control typhoid and dysentery. Water supply projects have been begun in over 100 localities. More than 5,000 tons of pipe for the projects has been delivered to Greece.

One of the major problems is the shortage of trained personnel for public health work; there is no immediate solution

but funds have been pledged for expanding medical education and training for the health professions. Marshall Plan funds have provided equipment for the medical and dental school in Athens and the medical school in Salonika. Major repairs have been provided for the School of Hygiene in Athens. A number of professionally trained health workers are being sent to the United States and other countries for additional training and study.

The need for nurses is acute. An intensive training program during the last three years has increased the number of graduate nurses from 500 to over 800, but it will be many years before there will be enough graduate nurses to meet the need. Over 1,000 practical nurses have attended special training courses lasting six to eight weeks. The courses were taught by Greek graduate nurses under the supervision of Public Health Service nurse officers assigned to the Mission. A school of nursing is under construction in Salonika, and a dormitory has been added to the Red Cross School of Nursing in Athens. Legislation has been introduced to create a Nurses Corps in the Greek national army.

Some new hospitals have been built. The Greek War Relief Association aided by ECA funds has constructed additional facilities at Tripolis, Salonika and Pervgros and at the Evangelismos Hospital in Athens. The ECA Health Division cooperating with the Greek Ministry of Hygiene is adding to the facilities of the Piraeus General Hospital, the Laikon and Hippocrateion hospitals in Athens, the Athens Mental Hospital and hospitals in Larissa, Makrokomi and other localities. Marshall Plan funds have also been used to repair more than 50 hospitals. A medical supply warehouse, under construction at Athens, is expected to improve the distribution of medical supplies.

